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THE NATIONAL SHRINE OF THE IMMACULATE CONCEPTION,
WASHINGTON, D. C. MAGINNIS & WALSH, ARCHITECTS.
FREDERICK V. MURPHY, ASSOCIATE ARCHITECT.



THE NATIONAL SHRINE *of the* IMMACULATE CONCEPTION



WASHINGTON, D. C.

Maginnis & Walsh, Architects — Frederick V. Murphy, Associate Architect

By

Sylvester Baxter

THE National Shrine of the Immaculate Conception, under construction in Washington, is designed as a symbol of American Catholic devotion to the Blessed Virgin. Very important precedents which may be quoted are: Santa Maria Maggiore, of Rome; Santa Maria del Fiore, Florence; the noted modern shrines, in France, of Lourdes and Fourviere, the Swiss shrine at Einsiedeln, as well as the great New World shrine in Guadalupe, Mexico. The shrine at Washington will be one of the world's great Christian temples, in size and monumental character ranking with the most celebrated cathedrals of Europe.

The site chosen for the building is the

west side of the grounds of the Catholic University, at Brookland, very near the National Soldiers' Home. It is felt to be fitting that a great architectural work embodying the highest historical ideals of Catholic art shall be related to this center of Catholic culture, and it is the hope of those deeply concerned in the success of the enterprise that the traditions of Catholic liturgy and the nobility of its ceremonials will here find beautiful illustration.

The architects, Maginnis & Walsh, of Boston, addressing themselves to the problem, concluded that a domical style of architecture would best convey the national character of the project. The ob-



AN EARLY STUDY FOR THE NATIONAL SHRINE OF THE IMMACULATE CONCEPTION,
WASHINGTON, D. C.

Maginnis & Walsh, Architects. Frederick V. Murphy, Associate Architect.

viousness of the dome of the National Capitol in the Washington scene was not regarded as any deterrent here; it was recognized that there was place for another dome of great scale, which would have its individuality heightened by a graceful campanile, a striking feature of the composition, related to Christian architectural traditions.

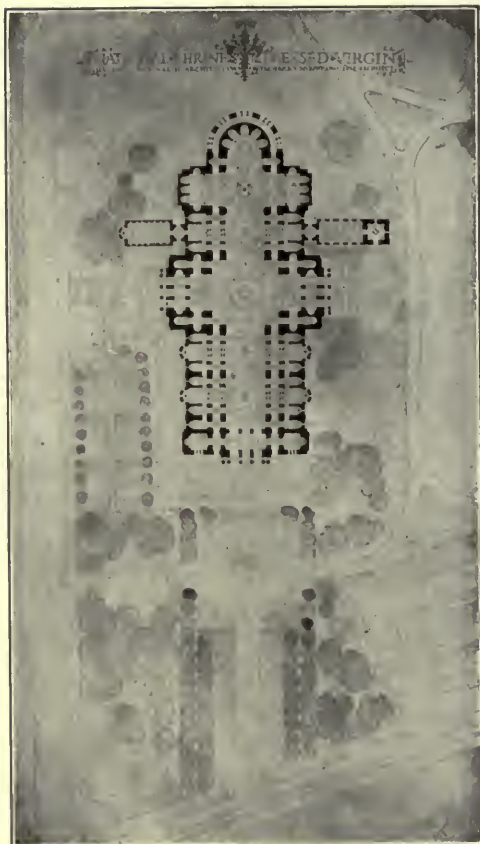
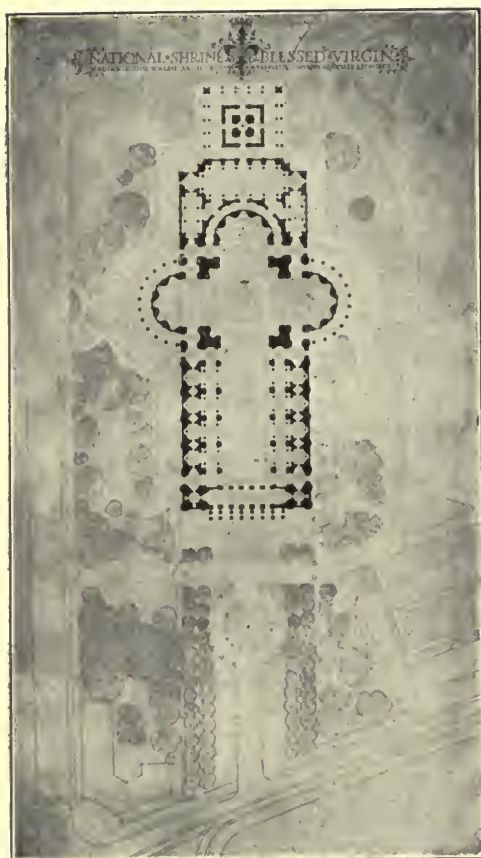
The choice of historical style was developed more or less inevitably out of the study. It was a determining consideration that the Byzantine system has that integrity of structure possessed by no other historical style of architecture except Gothic. The false or external dome of the Renaissance is only one of the insincerities of that particular tradition. The shrine is by no means to be con-

sidered as intended to rival the Capitol; architecturally it complements it, rather; its grandly proportioned mass will be as manifestly ecclesiastical in motive as that of the Capitol is secular, and just as one of the most celebrated distant views of the Capitol is obtained from the Soldiers' Home, very near the shrine, so from some point in the valley—perhaps from Arlington, beyond the Potomac, will doubtless be commanded a correspondingly striking vista of the shrine with its quite different, and lanternless, dome and graceful campanile.

The building is cruciform in plan with a triple apse, at the focus of which is placed the great altar. The triple apse has a singularly fitting symbolism. Each apse is to contain five chapels, so that the



AN EARLY STUDY FOR THE NATIONAL SHRINE OF THE IMMACULATE CONCEPTION, WASHINGTON, D. C. MAGINNIS & WALSH, ARCHITECTS. FREDERICK V. MURPHY, ASSOCIATE ARCHITECT.



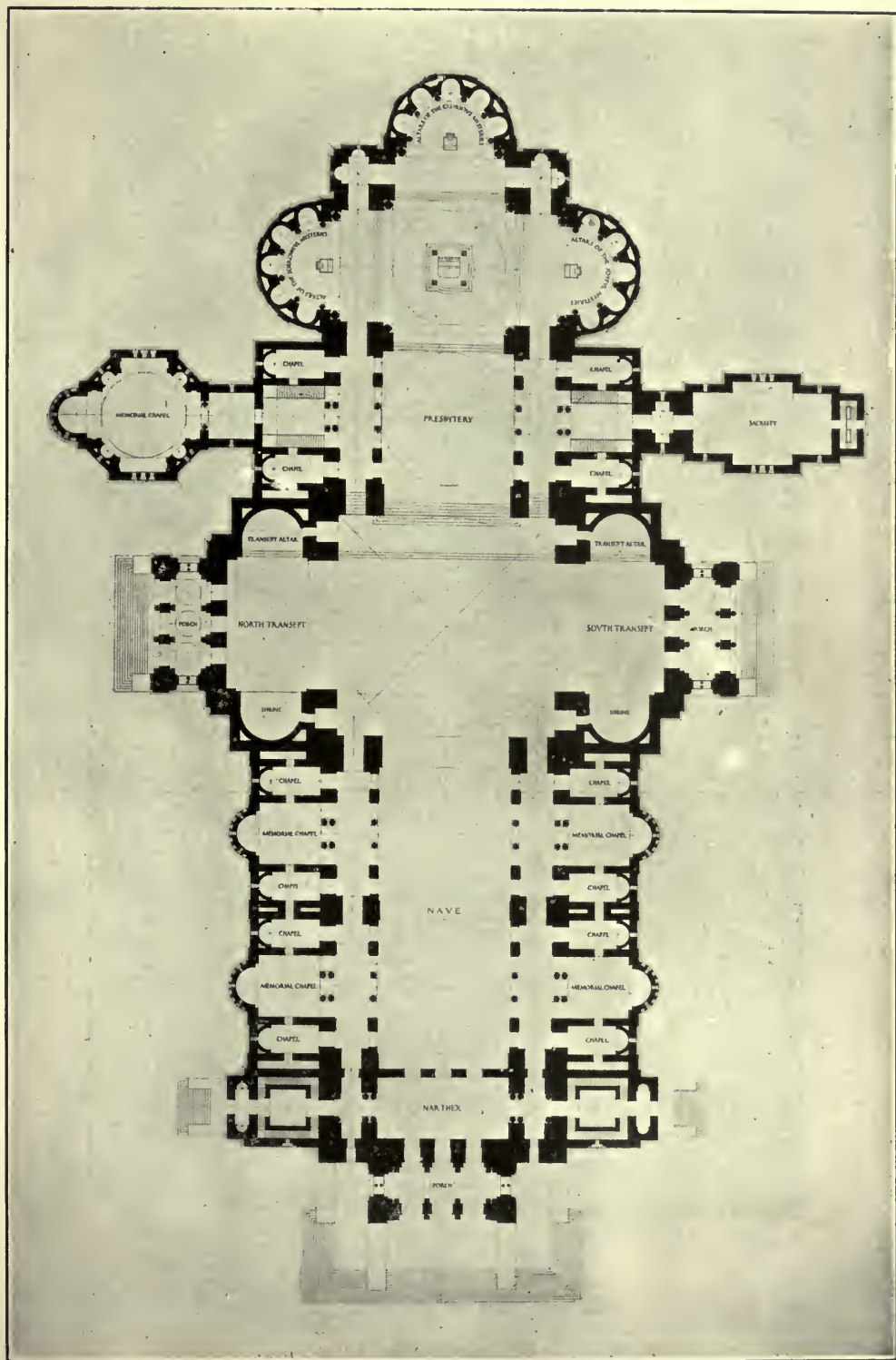
PLAN STUDIES—THE NATIONAL SHRINE OF THE IMMACULATE CONCEPTION,
WASHINGTON, D. C.

Maginnis & Walsh, Architects. Frederick V. Murphy, Associate Architect.

fifteen mysteries of the Rosary in the three familiar groups serve to express the central motive of the building. Between the triple apse and the transept lies a deep choir or presbytery. Axially disposed in relation to this are a capacious sacristy, with ample vesting space for large numbers of clergy at times of important ceremonies, at the epistle side, and a memorial chapel to the soldiers of the Great War at the gospel side.

Related to the sacristies, but accessible directly for the public from outdoors, is a foyer which forms the first story of the campanile, which rises to a height of three hundred and thirty feet, and which by virtue of its elevated situation will be as prominent as the Washington Monument

itself. The transept has a width of two hundred and thirty-eight feet. In relation to each transept is a very large recessed altar. The nave is fifty-four feet wide, ninety feet high and approximately four hundred and fifty feet long. An ambulatory completely encircles the nave. This ambulatory communicates with the lateral chapels, which are varied in scale, some of them taking on a very large importance, so as to develop transverse vistas across the church. An open triforium encircles the edifice, so that an excess of the seating capacity of over three thousand provided for in the auditorium may be had. The narthex, the width of the nave, is a monumental promise of a noble interior. It is entered



PLAN—FINAL DESIGN FOR THE NATIONAL SHRINE OF THE IMMACULATE
CONCEPTION, WASHINGTON, D. C. MAGINNIS & WALSH, ARCHITECTS.
FREDERICK V. MURPHY, ASSOCIATE ARCHITECT.



STUDY SKETCH FOR INTERIOR—THE NATIONAL SHRINE OF THE
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ARCHITECTS. FREDERICK V. MURPHY, ASSOCIATE ARCHITECT.



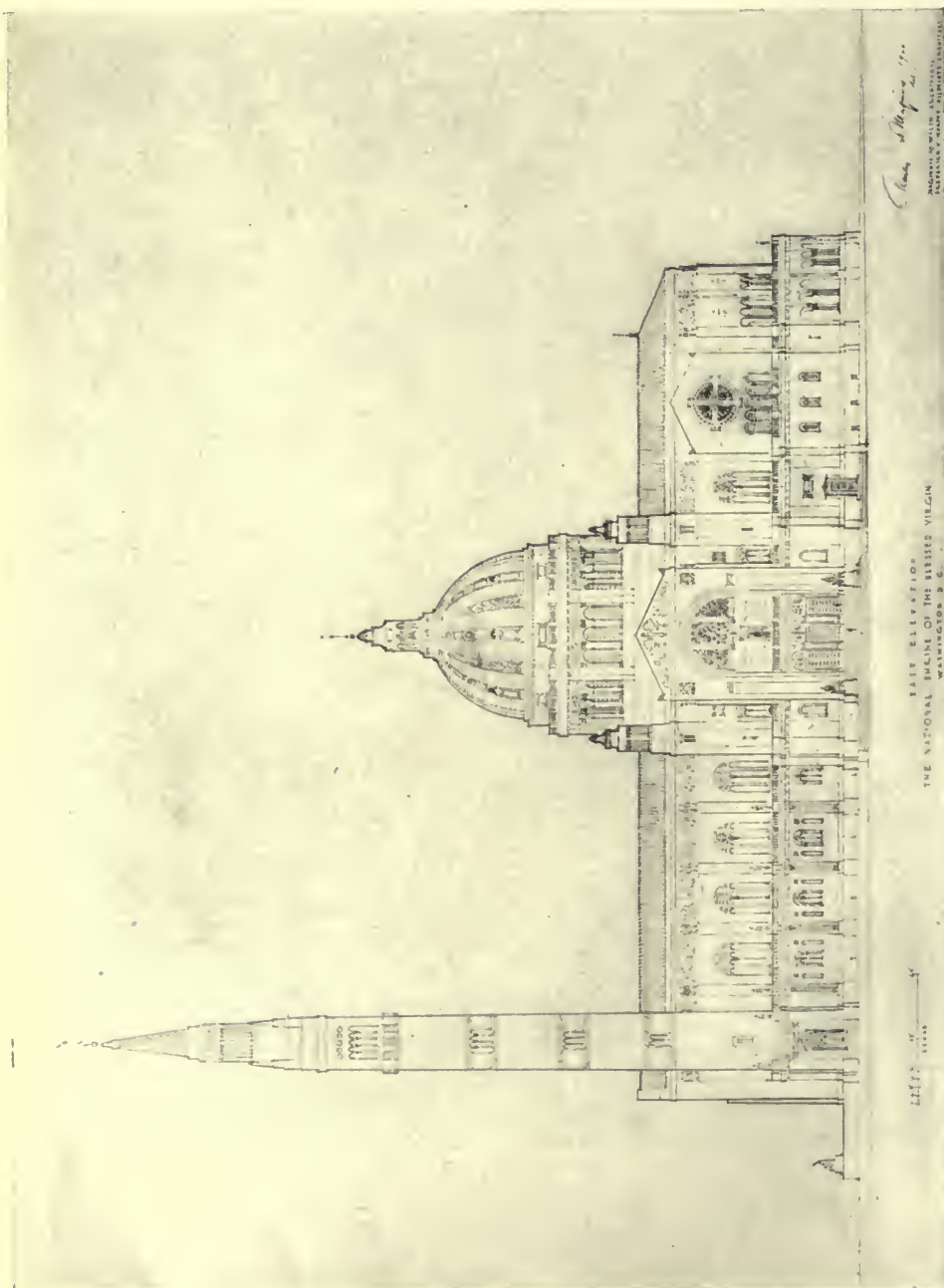
SKETCH OF INTERIOR—FINAL DESIGN FOR THE NATIONAL SHRINE OF THE
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PRELIMINARY STUDY OF SOUTH ELEVATION—THE NATIONAL SHRINE OF THE IMMACULATE CONCEPTION, WASHINGTON, D. C. MAGINNIS & WALSH, ARCHITECTS. FREDERICK V. MURPHY, ASSOCIATE ARCHITECT.



MODEL OF FINAL DESIGN—THE NATIONAL SHRINE OF THE
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ARCHITECTS. FREDERICK V. MURPHY, ASSOCIATE ARCHITECT.

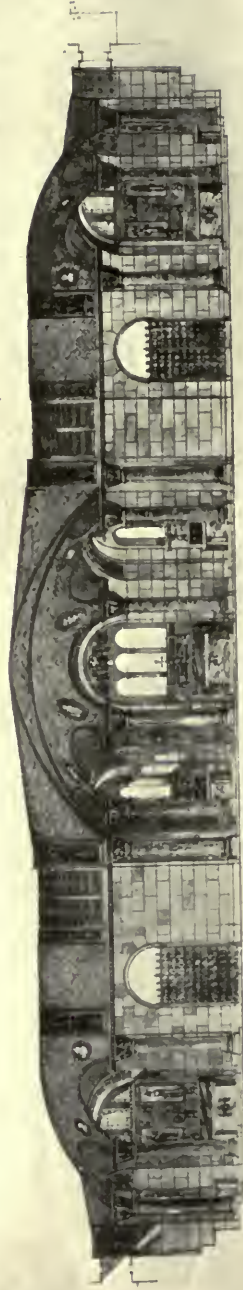


Thomas A. Murphy 1900
 ARCHITECTS
 1000 NEW YORK AVENUE, WASHINGTON, D. C.
 ASSOCIATE ARCHITECT, MICHAEL J. MAGINNIS

PRELIMINARY STUDY OF EAST ELEVATION—THE NATIONAL SHRINE
 OF THE IMMACULATE CONCEPTION, WASHINGTON, D. C. MAGINNIS &
 WALSH, ARCHITECTS. FREDERICK V. MURPHY, ASSOCIATE ARCHITECT.



MODEL OF FINAL DESIGN—THE NATIONAL SHRINE OF THE
IMMACULATE CONCEPTION, WASHINGTON, D. C. MAGINNIS & WALSH,
ARCHITECTS. FREDERICK V. MURPHY, ASSOCIATE ARCHITECT.



TRANSVERSE SECTION

THE CRYPT

THE NATIONAL SHRINE OF THE BLESSED VIRGIN
 OF THE IMMACULATE CONCEPTION
 ARCHITECTS, MAGINNIS & WALSH
 ARCHITECTS, FREDERICK V. MURPHY, ASSOCIATE ARCHITECT.

THE CRYPT NOW UNDER CONSTRUCTION—THE NATIONAL SHRINE
 OF THE IMMACULATE CONCEPTION. MAGINNIS & WALSH,
 ARCHITECTS. FREDERICK V. MURPHY, ASSOCIATE ARCHITECT.



DETAIL OF TRANSEPT—THE NATIONAL SHRINE OF THE IMMACULATE CONCEPTION,
WASHINGTON, D. C.

Maginnis & Walsh, Architects. Frederick V. Murphy, Associate Architect.

through three great arches framed with clusters of marble columns. At the crossing of the transept and nave the interior dome has an elevation of one hundred and eighty-one feet.

Underneath the triple apse is designed a particularly interesting type of crypt containing fifteen chapels. Correspondingly, the principal altar will be placed in the same focal relation as in the apse overhead. This crypt, the construction of which is to be immediately undertaken, will have a capacity of approximately fifteen hundred feet. No pews are to be placed in either auditorium. The height of the vault of the crypt is twenty feet six inches.

The architects are planning to have a very distinguished system of mosaic, based on the early Christian examples of Rome, which may be executed as means will admit in the future. This will be applied directly upon the vaults. The

intention is to create, by means of a combination of marble walls and mosaic vaults, such an effect of color as will induce the same sense of devotion that so notably distinguishes St. Mark's, in Florence. It is the conviction of the architects that no attempt should be made literally to relate the design of the building to any historical epoch, but that all traditional sources pertinent to the main motive of the scheme should be made to contribute. Out of regard to this point of view, they have felt at liberty to employ much of the beautiful decorative detail of the Lombardy architecture, the affinity of which with the Byzantine style is unquestioned.

The design, as finally achieved, is a product of gradual evolution under the long and careful study by the architects. The work of construction is now in hand, the building of the crypt having just been contracted for.



SIDE ELEVATION—RESIDENCE OF W. T. JEFFERSON, ESQ.,
PASADENA, CAL. MARSTON & VAN PELT, ARCHITECTS.



RESIDENCE OF W. T. JEFFERSON, ESQ., PASADENA, CAL.
Marston and Van Pelt, Architects



SOME RECENT WORKS OF MARSTON & VAN PELT



A NOTABLE CONTRIBUTION TO THE RESIDENCE
ARCHITECTURE OF SOUTHERN CALIFORNIA

By
Prentice Duell

WITHIN the past decade the architecture of Southern California has developed with a rapidity nothing short of remarkable, best accounted for as the result of an accumulation of forces coming at a time wholly propitious to their full expression.

The peculiar beauty of California and its Spanish heritage have always been inspiring, but it was necessary that a stimulating factor such as the Exposition at

San Diego come about in order to make the esthetic dream a reality. From then on an artistic development began to show itself, gaining continually new interest and strength through the ever increasing number of appreciative inhabitants.

In Southern California, a country full of the enthusiasm of youth, architectural activity knows no bounds. As might be inferred, the results are not always of the highest order, but the average of the



RESIDENCE OF W. T. JEFFERSON, ESQ., PASADENA, CAL.
Marston & Van Pelt, Architects.

work is good and now and then some very interesting and noteworthy things are produced.

Among the architects whose works merit first place are Messrs. Marston and Van Pelt, who for a number of years have been firmly established in Pasadena. As is the case with any firm in a comparatively new country, they are responsible for a variety of work, but above all their residences stand paramount. In this field, they have been particularly successful, favoring the Spanish and Italian styles, adapted to meet the somewhat similar conditions of Southern California. There is a generous diversity and originality in their handling of these styles and the sympathetic relationship of the house with its surroundings is always apparent. There is no conscious striving after effect, notwithstanding the fact that

their work has a decidedly picturesque quality. There is much of straightforward and simple craftsmanship displayed in the construction, and the hand of the builder and the mark of his tool remain a part of the finished work.

The small houses are all designed in a direct and simple manner, with no deception as to their modest dimensions. Those following the Spanish tradition are especially pleasing, that of Mr. N. C. Sweet being a good example. One finds the house half hidden in the shade of a eucalyptus grove, the low tiled roof and roughly plastered walls with a bit of decoration about the openings, recalling the spirit of old California of Ramona's day.

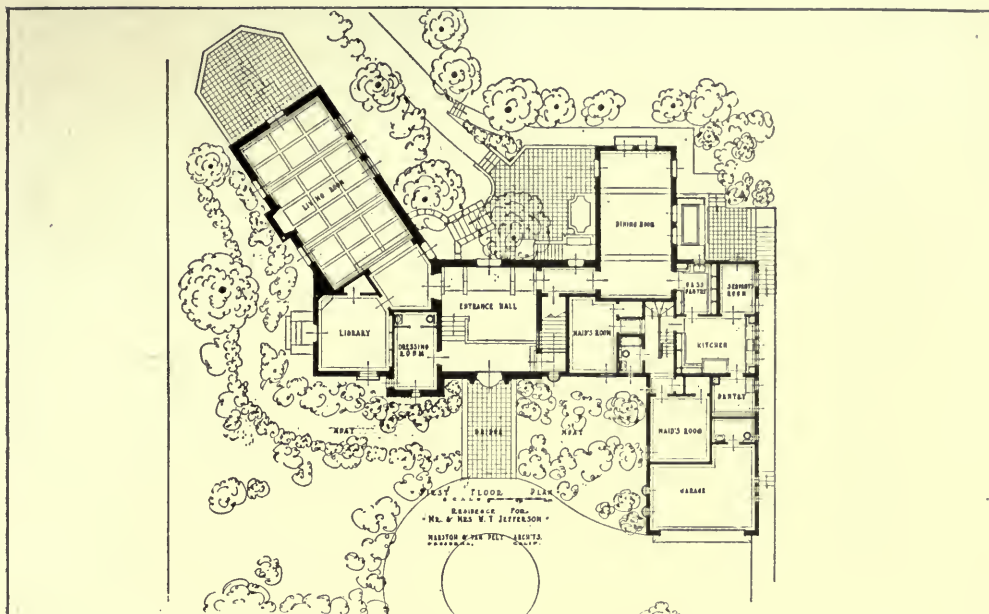
A house somewhat removed from the usual spirit of the work of the firm is that of Mr. Garfield R. Jones. The departure lies, however, in the architec-



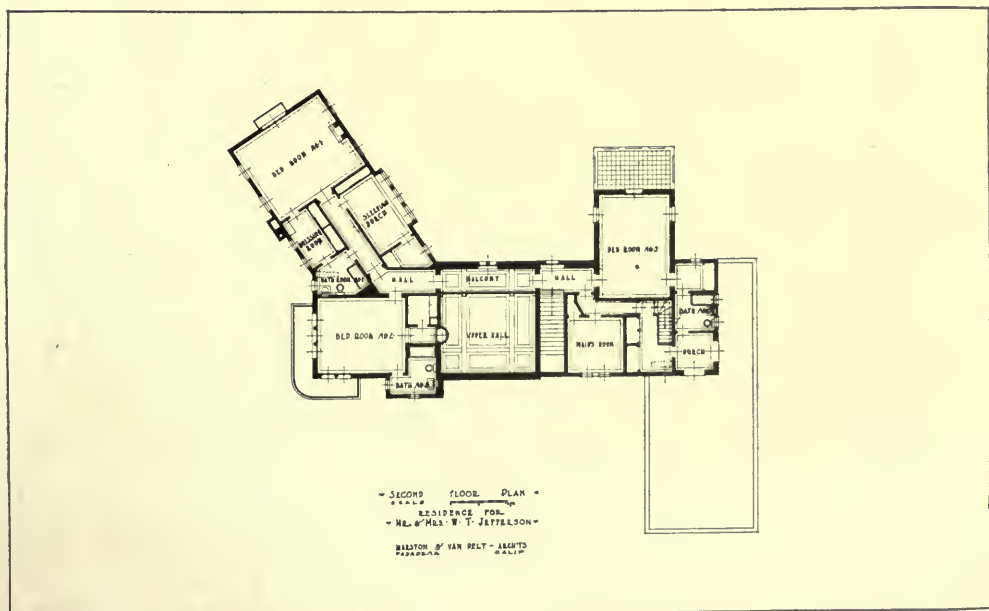
ENTRANCE SHOWING BRIDGE AND MOAT, RESI-
DENCE OF W. T. JEFFERSON, ESQ., PASADENA,
CAL. MARSTON & VAN PELT, ARCHITECTS.



SIDE AND REAR ELEVATION. RESIDENCE OF W. T. JEFFERSON,
ESQ., PASADENA, CAL. MARSTON & VAN PELT, ARCHITECTS.



FIRST FLOOR PLAN—RESIDENCE OF W. T. JEFFERSON, ESQ., PASADENA, CAL.
Marston & Van Pelt, Architects.



SECOND FLOOR PLAN—RESIDENCE OF W. T. JEFFERSON, ESQ., PASADENA, CAL.
Marston & Van Pelt, Architects.



DOOR INTO LIVING ROOM—RESIDENCE
OF W. T. JEFFERSON, ESQ., PASADENA,
CAL. MARSTON & VAN PELT, ARCHITECTS.



STAIRWAY IN ENTRANCE HALL



LIVING ROOM

RESIDENCE OF W. T. JEFFERSON, ESQ., PASADENA, CAL.

Marston & Van Pelt, Architects.



ENTRANCE HALLWAY



BALCONY IN ENTRANCE HALLWAY

RESIDENCE OF W. T. JEFFERSON, ESQ., PASADENA, CAL.

Marston & Van Pelt, Architects.



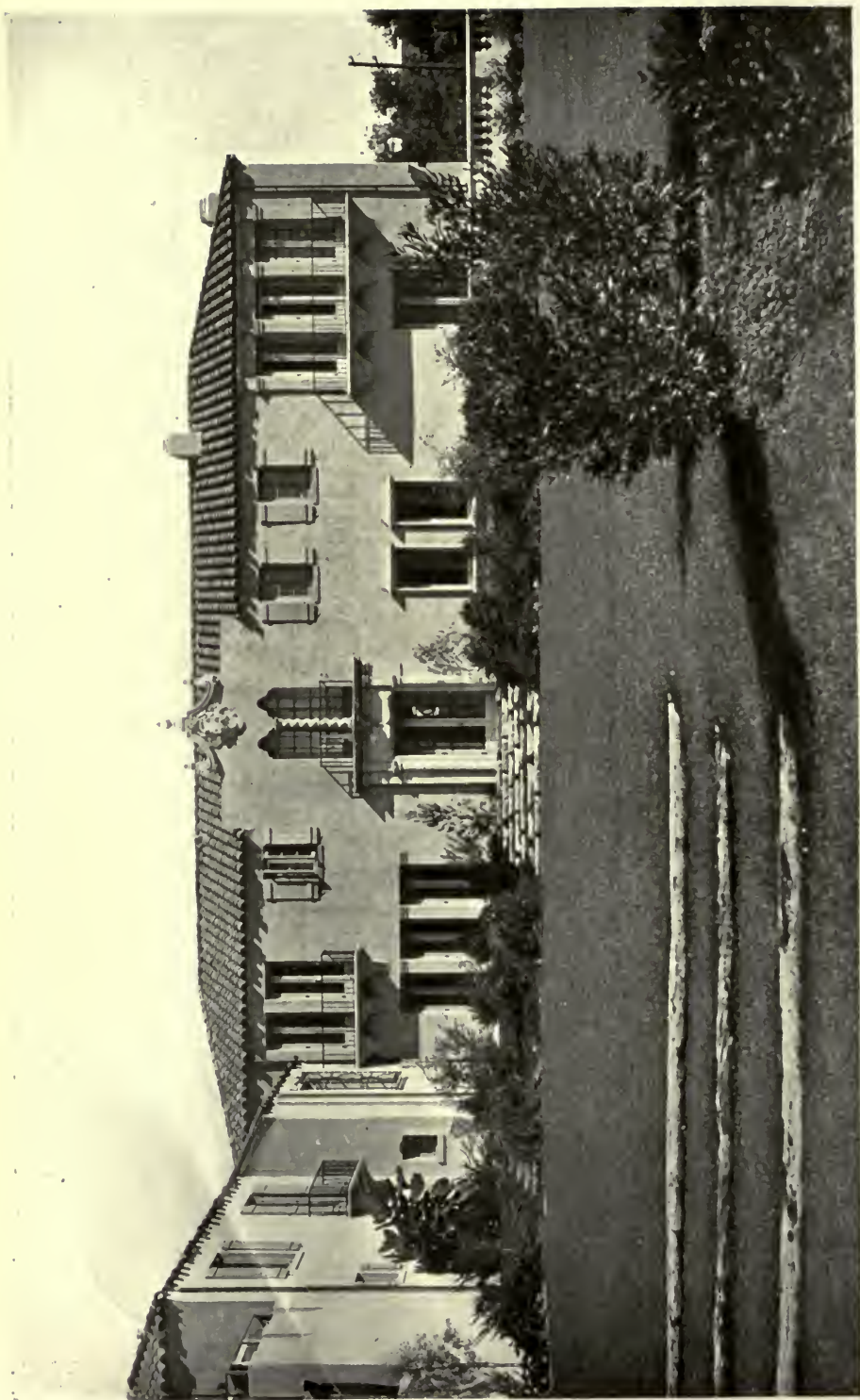
DINING ROOM—RESIDENCE OF W. T. JEFFERSON, ESQ., PASADENA, CAL.
Marston & Van Pelt, Architects.



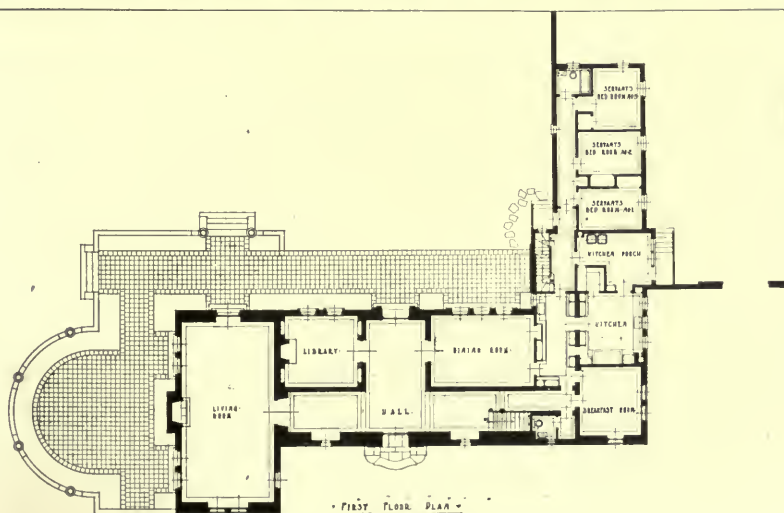
RESIDENCE OF N. C. SWEET, ESQ., PASADENA, CAL.
Marston & Van Pelt, Architects.



ENTRANCE, FRONT—RESIDENCE OF N. C. SWEET, ESQ.,
PASADENA, CAL. MARSTON & VAN PELT, ARCHITECTS.



GARDEN ELEVATION—RESIDENCE OF JOHN HENRY MEYER,
ESQ., PASADENA, CAL. MARSTON & VAN PELT, ARCHITECTS.
P. G. THIENE, CONSULTING LANDSCAPE ARCHITECT.



• FIRST FLOOR PLAN •

SCALE: 1/8" = 1'-0"

RESIDENCE FOR

MR. JOHN H. MEYER

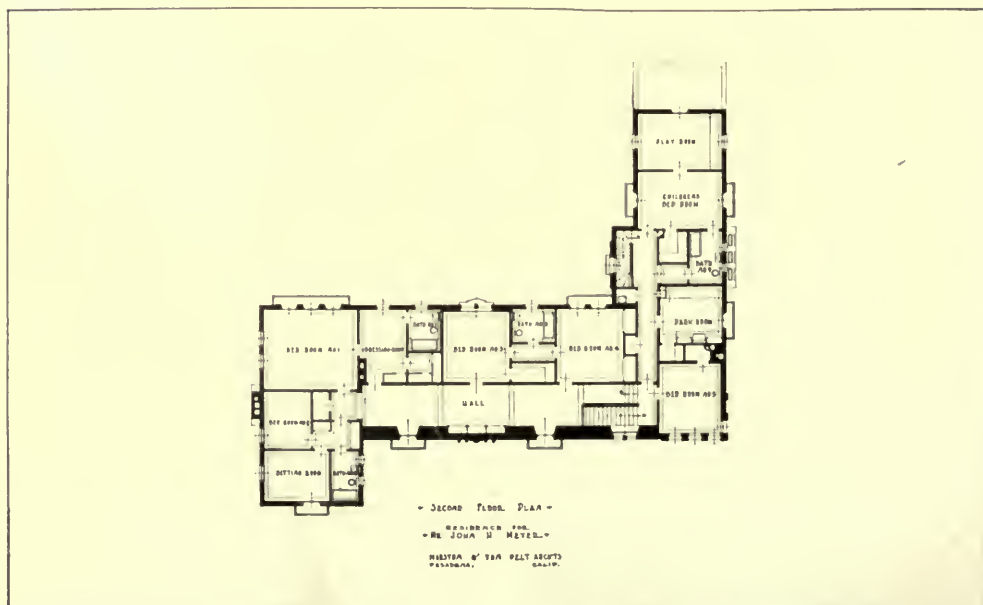
SIXTH WARD, ELY, ARIZONA

PASADENA, CALIF.

ENTRANCE ELEVATION AND FIRST FLOOR PLAN—RESIDENCE OF JOHN HENRY MEYER, ESQ.,
NEAR PASADENA, CAL.
Marston & Van Pelt, Architects.



ENTRANCE GATEWAY—RESIDENCE OF JOHN HENRY MEYER, ESQ., NEAR PASADENA, CAL.
Marston & Van Pelt, Architects.

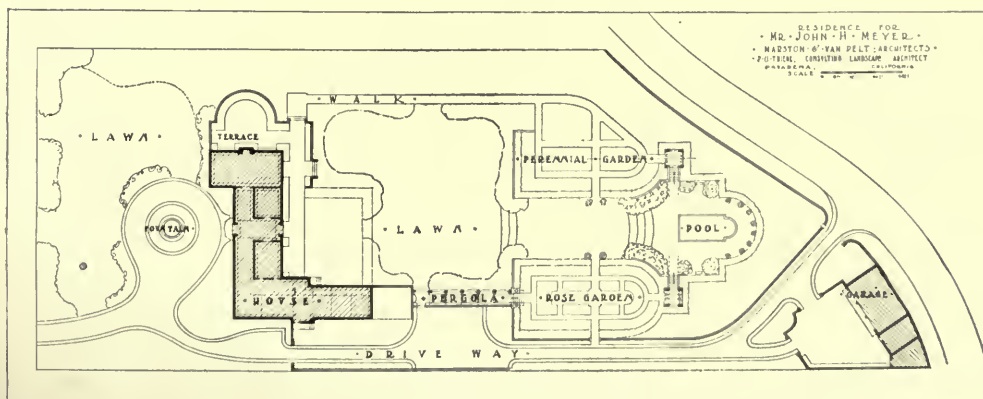


SECOND FLOOR PLAN—RESIDENCE OF JOHN HENRY MEYER, ESQ., NEAR PASADENA, CAL.
Marston & Van Pelt, Architects.



DETAIL OF GARDEN—RESIDENCE OF JOHN HENRY MEYER, ESQ., NEAR PASADENA, CAL.
Marston & Van Pelt, Architects.

P. G. Thiene, Consulting Landscape Architect.



BLOCK PLAN—RESIDENCE OF JOHN HENRY MEYER, ESQ., NEAR PASADENA, CAL.
Marston & Van Pelt, Architects.

P. G. Thiene, Consulting Landscape Architect.



STAIR HALL—RESIDENCE OF JOHN HENRY MEYER, ESQ., NEAR PASADENA, CAL. MARSTON & VAN PELT, ARCHITECTS.



GARDEN ELEVATION—RESIDENCE OF J. E. TILT, ESQ., PASADENA, CAL.
Marston & Van Pelt, Architects.



GENERAL VIEW—RESIDENCE OF J. E. TILT, ESQ., PASADENA, CAL.
Marston & Van Pelt, Architects.



GALLERY—RESIDENCE OF J. E. TILT, ESQ., PASADENA, CAL.
Marston & Van Pelt, Architects.



LOGGIA—RESIDENCE OF J. E. TILT, ESQ., PASADENA, CAL.
Marston & Van Pelt, Architects.



RESIDENCE OF S. S. HINDS, ESQ., PASADENA,
CAL. MARSTON & VAN PELT, ARCHITECTS.



MAIN ENTRANCE—RESIDENCE OF W. K. JEWETT, ESQ., PASADENA, CAL.
Marston & Van Pelt, Architects.

tural expression rather than in the historical precedent. The type follows the English colonial style which grew up about San Francisco among the British settlers, shortly after the days of "Westward Ho!" It is a style with possibilities worthy of development, but will probably never meet with marked favor, for the trend of popular interest is decidedly in favor of Spanish adaptation. This example is a simple expression in wood of an open plan conforming to the conditions imposed by the climate, and seems quite as livable as those of the conventional brick or tile construction.

One of the larger works done by the firm is the house for Mr. J. E. Tilt. Commanding an elevated position, it bears a certain repose and impressiveness, though it undoubtedly lacks the surety and directness in treatment exemplified in the later work. The interior, however, is very commendable.

The house for Mr. S. S. Hinds is one of the best things done by the firm both from the standpoint of the house and of the garden. Some years ago, this garden was selected as one of the best five in Southern California. The house is exceptionally well built and the craftsmanship, especially that of the wood work, is deserving of the highest praise. The construction is honest throughout and the half-timber more than mere ornamentation. There are bits of delightful woodcarving, particularly on the corbels, which often take the forms of grotesques.

A house almost in direct contrast with the foregoing is that of Mr. W. K. Jewett. As an *ensemble* it is hardly open to criticism, the simplicity of the mass and the satisfactory relation of its elements atoning for a few bits of perhaps questionable detail. The heavy terracotta window frames could be refined or even dispensed with, and the quoins



CONSERVATORY IN THE RESIDENCE OF W. K. JEWETT, ESQ., PASADENA, CAL.
Marston & Van Pelt, Architects.

should be acknowledged as more than mere ornamental encrustations. The design of the interior and its appointments are very agreeable and, all in all, more successful than the exterior.

The house is set in a vast garden, the plan of which was developed from original sketches drawn by Mr. Charles Leavitt of New York City. At the front and rear of the house lie the formal garden and the mall, respectively, each carefully studied and adorned with Italian sculptures. Surrounding the estate and encompassing the house and its formal adjuncts, is a walk set in an informal garden and interrupted at intervals by "surprise" gardens, made attractive with sculpture and fountains. The walk "ties-in" the several buildings of the estate and ultimately passes before the garage at the rear of the house, where it joins the main driveway.

An interesting example based wholly

on the Spanish tradition is the house for Mr. John Henry Meyer, which is situated near Pasadena. This house was one of the first to employ color to any extent upon the exterior walls. In this instance they may be described as pink, though through variation it becomes at times an ochre and Naples yellow. At any rate, the color, though meant only for the delectation of the esoteric, found instant favor in the popular mind, with the result that now many of the small and audacious houses which spring up almost over night about Los Angeles, display a veritable riot of the palette. However, since the example at hand was one of the first to revive external color, Messrs. Marston and Van Pelt are to be complimented. Color was the one thing most needed in the architecture of Southern California, though the architects, as a whole, were too timid to employ it to any great extent.



GARDEN ELEVATION—RESIDENCE OF GARFIELD R. JONES, ESQ., OAK KNOLL,
PASADENA, CAL.
Marston & Van Pelt, Architects.

The house makes a pleasing appearance with its pink walls, red-tiled roof and stone-colored ornamentation about the entrance. The shutters are pale blue—rather exceptional, to say the least—but one soon feels that they lend their note to the studied harmony and tend to cool down the otherwise warm tone of the *ensemble*. In spite of the simplicity of the composition and its restraint as regards detail, a decided interest is maintained throughout by the studied placing of the openings. Attention is justly drawn to the entrance by virtue of its being the one spot of ornamentation, in itself a study of elimination in favor of conscious refinement.

On the interior one feels that there is some inconsistency in the treatment of several rooms, but the variation is so slight that it hardly warrants adverse

criticism. The rooms are richly finished, and the furniture and fixtures designed in excellent taste. The hallway of the second floor has a large built-in linen closet of Spanish design, a beautiful architectural composition and a delightful piece of wood-carving.

The residence of Mr. W. T. Jefferson marks a high point in the work of the firm and, as an example of style, is one of the best arguments in favor of Spanish adaptation in Southern California. It is especially fortunate in its location. The premises lie along a shady and somewhat narrow street about which still lingers much of the old tradition. The house stands back some distance from the street, on the opposite bank of a natural *barranco* (or small stream) and a bridge spanning this improvised moat connects with the main entrance. To the rear of



RESIDENCE OF GARFIELD R. JONES, ESQ., OAK KNOLL, PASADENA, CAL.
Marston & Van Pelt, Architects.



INTERIOR—RESIDENCE OF GARFIELD R. JONES, ESQ., OAK KNOLL, PASADENA, CAL.
Marston & Van Pelt, Architects.

the house the land falls away rather abruptly in a series of natural terraces which are overgrown with a dense tropical verdure, while below it widens out into an extensive and wooded valley. The setting is incomparable even in this land of extraordinary beauty.

The ordonnance of the plan was determined by the irregularities of the land, giving an arrangement both interesting and ingenious in its workings. A great entrance hall is the key to the solution, rising through the two stories and dividing the living rooms and owner's chambers from the dining room, kitchen, and servants' quarters. One enters the hall upon a mezzanine floor several steps above the first floor level, and a short flight of stairs lead up to a balcony at the rear of the hall, giving access to the rooms of the second floor.

The elevations in expressing the plan give to the hall a greater height than that of the adjoining portions of the house, and the two trees which rise above the house from the rear emphasize further the height and significance of this element. The elevation of this portion is more important still in that it contains the main entrance with the single use of a decorative *motif*.

An idea of the interior of the house can best be obtained from the photographs. The architectural and decorative treatment is handled throughout in a subdued key, in keeping with the *objets d'art* and the canvases of old Spanish masters. As a whole, the house is a distinct contribution to the architecture of Southern California and to the residential work of this country.

A FEW FUNDAMENTALS *in the* DEVELOPMENT *of* A COMMUNITY HOSPITAL



*By Frank E. Chapman, Director, Mt Sinai Hospital
of Cleveland with an Introductory Note by Dr John
G. Bowman, Chancellor, University of Pittsburgh*



During the past twenty-five years medical science has, through its swift advance, become relatively a new science. In this same period hospitals have become institutions which, in order to succeed, must be scientific in plan of building as well as in the scientific service to patients. In a word, the purpose of the modern hospital is to care for the sick and injured; to provide training for nurses, dietitians, administrative officers, laboratory technicians, and internes; to encourage and support research in medicine and to prevent illness.

These purposes create one of the most difficult problems which it is possible for an architect to meet. Few architects realize the importance of sound study of hospital problems in connection with hospital construction. Further, there are but few men in positions of hospital administration who have made a sound study of this problem. The result is that hospital boards of trustees entrusted with the building of new hospitals or with the reconstruction of old hospitals are much at a loss to know how to solve their problems. Gradually there is developing the custom of employing not only an architect in connection with hospital building, but also a master hospital administrator to advise and consult with the architect. Frank E. Chapman, the author of this article is a man admirably qualified to discuss this problem. He thinks straight and is always practical.—John G. Bowman.

IN the popular mind the term hospital immediately visualizes a building for the care of the sick. But a hospital is more than a building; primarily it is an ideal. The service that a hospital plant renders is what makes it, and not the building. It is possible to take a building wholly unfit for hospital purposes, and if the service is right the hospital is a success. Difficulties under such circumstances may, of course, cause much waste. The point, however, is that the architect who would succeed in this field must know both the construction and the ideal of hospital service.

The modern hospital has come to be the health center of the community. It furnishes facilities for the diagnosis, care, and study of disease. That is what a hospital is for, irrespective of its size. Certain limitations of facility occur for economic reasons in the smaller units, but the fact remains that any institution which cannot realize for itself a complete diagnostic unit should not attempt the care of the acutely sick.

We have heard for several years past of a program of standardization for hospitals. The term standardization was indeed an unfortunate choice. There is no such thing, and there never will be such a thing as a standardized hospital. There are, of course, certain units of the producing plant that can be standardized, but if the premise is correct that a hospital is an ideal of service, and that service is not typical in all institutions, no one should want to stultify its operation by the establishment of uniform standards. These standardization programs are an attempt to improve hospital practice. The purpose of this article is to attempt to visualize the needs of hospitals and to lay down a few fundamental principles in the planning of hospitals to the end that our institutions of the future will be nearer to the heart's desire.

TYPE OF CONSTRUCTION

A study of hospital architecture of the past demonstrates that there are but few general types. For the larger institutions

there is the block plan, the pavilion type, the individual unit plan, and lately, the sky-scraper type. In the smaller institutions there is not as uniform conformation to type as in the larger, some assuming nondescript form both architecturally and from a standpoint of operation, some being well planned and developed along conventional building lines, and others approaching private home development. Each type has its definite advantages and disadvantages.

The type is dependent upon the amount of ground available, the environments of the site, the service to be rendered, the size of the institution, etc. One would be presumptuous to attempt to set down a hard and fast rule as to its determination. It is the thought of some that special hospitals alone should be developed, such as a children's, orthopedic, maternity, and *ad infinitum*. Others contend that a large general hospital embracing in its service the care of all types of disease is the ideal and the economic plant. These points are debatable and subject to a general analysis of the situation. The really important point to be borne in mind is that, irrespective of type or size, the completed plans must present a composite of all that is necessary for efficient diagnosis and treatment of disease.

STYLE OF ARCHITECTURE

Too little attention has been paid to the esthetics of hospital planning. While it is true that hospital buildings should be more or less monumental in character, as should all public or semi-public buildings, there is no excuse whatever for the forbidding structures with which we are too often confronted. The development of an elevation pleasing to the eye, is not more expensive than an unattractive one, and while there are a great many things more important in the planning, this point should not be overlooked. It must be borne in mind that a hospital deals with abnormal humanity, that its guests present themselves with a lack of ease which sometimes amounts to fear or terror. The most trivial details may increase or decrease that feeling. The first impression is very often a lasting one, and

it certainly is of extreme importance that every effort be made architecturally to combat these mental hazards.

DEVELOPMENT OF PROGRAM

Another grave mistake in hospital planning is that there is not at the outset a definite building program. It is, of course, impossible to visualize the ultimate needs of any institution, but certainly in the beginning a definite goal can be established as to the hospital's program of community service, and the building plans so adjusted to this general scheme that the subsequent building or buildings to be erected will be allocated in advance as to space, presenting in the final development a coordinated scheme rather than a hodge-podge one, such as is to be seen in many institutions. To illustrate this point specifically, a community of 50,000 people determine to build a 100-bed hospital with the thought that after a period of years the community may grow to 100,000 and a 200-bed hospital be the result. The logical procedure is to draw a ground plan of a 200-bed hospital, to allocate in a general way the service to be rendered by each of these different spaces, and then to detail only such building or buildings as are to be built at the beginning.

The average Board of Trustees have neither the time, the inclination nor the ability to determine properly what the pertinent needs of an institution are. This Board of Trustees has undertaken a public trust, and if they are faithful to that trust, it is necessary that the most careful consideration be given to any and all expenditures, to the end that a maximum of efficiency be obtained. Even before a single sketch of the future hospital is made, a very definite analysis of the community's needs is indicated, together with a crystallization of the board's policies in an effort to meet those needs. This preliminary study should determine the relative needs of the community, i. e. proportion of private, semi-private and ward beds; relative need for surgical, medical, obstetrical, pediatric and special beds; need for various laboratory services and how to meet them; number of operating

rooms (ascertaining if equipment will meet demands of beds planned); need for an out-patient department; is it to be general or special; is it the thought to develop other than an indigent clinic, if any; if so, to what extent, *ad infinitum*. This will necessitate an analysis of the community from a point of view quite foreign to that of the average citizen. Without doubt, the only qualified person to make such an analysis is one who has had experience and has made a special study of such problems, and no board can afford the development of a hospital of material size without consulting with such a hospital authority.

Coincident with his appointment should be the appointment of the architect, in order that there may be brought into the deliberations of the body as great a diversity of points of views as is possible. These two groups of professional advisors should be retained, if possible, even before the site is selected.

CHOOSING THE LOCATION

The question of location is not as simple as it would seem. There is the problem of transportation. While it is true that with the motor vehicle of today, this is not so acute, still a hospital should be located closely adjacent to the center of the community it serves (or in large cities after consideration of present plants), sufficiently close to the arteries of travel to be easy of access to visitors, to patients and others and still not so close as to be within range of undue noise. The problem of orientation is an important one and should have very definite consideration in a determination of site. Further, the size and shape of the site is dependent on what is to be the ultimate plant. These and many kindred questions should not be determined in a haphazard way, and should only be answered after a very careful study of all phases of the problem. With such a study conducted under the proper auspices, the architect, in collaboration with the consultant, can then develop and present to the board preliminary sketches based upon scientific data.

The country over is dotted with institutions whose fundamental conception is

wrong. There is in a certain community a hospital developed under an endowment, specifically limited in its scope, which by reason of the fact that it did not fit into the scheme of community service, and was developed far in excess of the needs of the community along certain lines, has been idle for a period of five years, notwithstanding the fact that the community as a whole is crying for hospital beds. Hospital development should be on a sound foundation. The root of that foundation should always be community service, and not personal or group aggrandizement. In order to safeguard against an improper development, the plea is herein reiterated, that before a single stone is laid, the whole subject of community health service be gone into, and plans of the new organization fitted into the general community scheme.

INTERIOR DEVELOPMENT

In the interior so much is dependent upon the type and character of the work to be done, that few hard and fast rules can be laid down. It would seem logical to discuss the interior planning exactly as we would inject ourselves into the institution, travelling the route of the patient being admitted, and then ramifying into the various activities that contribute to the patient's welfare.

We present ourselves at the front entrance to the hospital. We are in an abnormal state of mind. How much better it is to be precipitated into the light, cheery, wholesome atmosphere of a well designed and even beautiful lobby, than it is to go into a dark and unattractive entrance way, characteristic of most of our hospitals. Make it light; make it roomy; pattern it after our up-to-date apartment buildings and hotels. While counters are necessary to insure privacy, don't have any wickets.

By reason of its symbolic virtue, white has almost universally been chosen as the predominating color in hospital decorating. The color has been traditional in hospitals, and while it may have produced the results desired, it at the same time produced a mental reaction that was exceedingly undesirable, and often appalling. It must be borne in mind that a

hospital bed has a continuous occupancy for indeterminate periods of time, and I am sure we all agree that a cheery atmosphere produced by tinted walls and other similar refinements are more conducive to the well-being of a patient than the forbidding, cold, white appearance presented in most institutions. It should be the primary thought in building and equipping a hospital that the more cheerfulness you can get into the private room or into the ward, the more you will serve its future occupants.

In the private room various color schemes can be used. Cretonne can be used on the windows. Similar small details all contribute to the service that it is planned to give. In your wards, artistic panelling of walls will help. Be careful to get away from conventional patterns.

Mechanical ventilation is advocated by some. Certainly natural free ventilation is much better. While our building codes the country over provide a certain air turnover per hour, with proper thought this turnover can be accomplished in natural ways, and be more constant than if mechanical equipment is set up for it. This, of course, pertains to an average hospital that has a site of reasonable size.

LOCATION OF UTILITIES

It must be borne in mind that a hospital is a medical shop, producing well human beings, and the same time-studies, the same routing of production, etc., are indicated, as are indicated in the planning of a foundry. Given a certain number of nursing procedures and a certain number of beds, it is exceedingly simple to determine the best and the worst location for service rooms. The hospital's service is dependent very largely upon the personal element therein; the location of service rooms have a direct bearing upon the service to the patient. A service room properly located, so that it can furnish quick service to patients, is, of course, superior to one improperly located. Too much emphasis cannot be placed on this point. Too many hospitals exemplify the primary thought of furnishing patients' beds, rather than patient service. Make your proportion of utility rooms, service kitchens, toilets, etc.,

adequate for the number of patients that must be served, even to the sacrifice of bed occupancy. Make your corridors commodious. Furnish adequate waiting space for relatives and friends of acutely sick patients. This one item will eliminate a large percentage of complaint.

Look into the acoustical treatment of your institution. With our present-day type of construction—re-inforced concrete and steel—the problem of noise in hospitals is becoming greater and greater every day. Have your floor covering and your wall covering furnished with this problem in mind—incident, of course, to other problems.

In your ward development, if it is decided that you have a ward development, do not get into an overly large ward, but by all means have the proportion of isolation rooms to the total ward service ample, so that the acutely sick may be taken care of as they should be, not for themselves alone, but for their companions in the wards. It is wrong to have an acutely sick patient or a dying patient in an open ward, not for the acutely sick or dying, but for those who must be left in these wards.

In the development of X-Ray plans you are again dealing with the subject of community service. Is your X-Ray department going to simply take care of the patients within the walls of the hospitals? If so, one plan is indicated. If not, and the hospital is to accept its true obligation to the community and is to further the programme of community health, then another plan is indicated.

The same remarks pertain to the laboratory, although not to as great a degree. The determining factor in the development of the laboratory is your medical staff, and the type of work that that medical staff is to do. An exceedingly small laboratory may be ample for one hospital of 100 beds, whereas a laboratory of three times that size would be inadequate for another hospital of the same capacity. If there is to be a large amount of research work, still another development is indicated.

The dietary is a problem that is always present, and is a potentiality for

good or for evil whose importance can hardly be realized. It is not a question of hospitals serving poor food or buying poor food, or that hospitals do not know how to prepare food, but in a very large number of instances it is the method by which that food is served. One very common method of determining the plans of a hospital kitchen is to go to some hotel that has an efficient kitchen plan, and copy it for a hospital performance. No plan of development would be less likely to approach the ideal than this. The preparation of hospital meals is not a short order performance—it is volume cooking properly served. It is wise to study the problems of hospital service and then to develop the kitchen.

To be specific on these points, there are several methods of serving hospital trays. There is, of course, the central kitchen in all institutions. One method of transporting is from steam tables, in food carts to steam tables in the serving kitchen, from that to the patient's tray and then into the patient's room. How anyone can expect to have proper food under such a system of serving is beyond human conception. It simply can not be done. It entails from seven to eleven handlings, and if the patient is to get the food hot, it gets there at the expense of being re-cooked several times, dependent upon the number of handlings.

Other systems contemplate the use of super-heated food carts, which are in turn transported to serving kitchens. Others have heated individual food containers. Whichever system of service is contemplated, this point must be determined before the fundamental plans of the kitchen are established.

There then comes the problem of handling the dirty dishes. Is it to be in a central dishwashing room, or is it to be taken care of in a serving room? How is the garbage to be handled? What is the location of the serving kitchen to the

elevators? There are many kindred problems that need careful thought before the location of your utility is determined.

In planning your laundry, bear in mind that there must always be leeway in capacity to permit of quick passage of linen through, under routine conditions, and also provide for emergency calls. Very few hospitals are fortunate enough to be equipped with anything but the barest linen supply, and if there is to be a tie-up in the laundry on account of insufficient equipment, it necessarily means a larger supply of linen for the hospital as a whole. Bear in mind that a very small percentage of the laundry's volume is in personal linen and that it must be set up to take care of a large volume of flat work and work of a like nature.

Your mechanical department is responsible for a very large percentage of the cost of operation, and any safeguard and any means of checking that can be thrown around its operation are indicated. The same system of recording gauges, etc., that are deemed necessary in a manufacturing plant are also essential in a hospital plant, with the definite proviso, however, that your administrator has the knowledge and the vision to use them. The hospital's performance is three hundred and sixty-five days a year, twenty-four hours a day, and your department must be equipped with this in mind. Two small units covering a pertinent operation are always preferable to one large unit.

When all of these individual problems are settled for themselves the big job is the coördinating of the whole and it is in this that we secure our efficient or inefficient hospital. The operation of a hospital offers a complexity of problems that is presented in very few if any activities of life, and we cannot be too careful in a consideration of the plans of construction to take into our deliberations at all times a thought of the operation.



RECENT FLOWER SCHEME BY MRS. ELLEN M. SHIPMAN FOR THE ENCIRCLING WALK OF THE GARDEN AT AVALON, ESTATE OF ROBERT S. BREWSTER, ESQ., MT. KISCO, N. Y. PLANNED BY WILLIAM A. DELANO, OF DELANO & ALDRICH, ARCHITECTS.



THE MERGED COLOR EFFECT OF THE LOWER GARDEN AT THE COUNTRY HOME OF MRS. OTTO WITTPENN, BERNARDSVILLE, N. J., PLANTED BY LEWIS BARKMAN LARGELY WITH BLUE ANNUAL SAGE, HELIOTROPE AND AGERATUM. HOUSE AND GARDEN DESIGNED BY CHESTER ALDRICH.

GARDEN COLORISTS



By



BELINDA GERRY

With Photographs by Antoinette Perrett

THERE was a time not beyond our remembrance when flower gardens were planted for the beauty of individual blossoms—the various plots and compartments filled in with perennials, annuals and bulbs as best became the convenience and conscience of the gardener. At a later time there followed a period of garden planting for mass effect, various spaces of the design being held to plants of one variety in order to provide areas of single color in the blooming season. Patterns of color, principally in geometrical design, were the ideal of the gardener. Then occurred the idea of planting gar-

dens wholly in one color, the variety selected and matched to produce a solid even mass of single shade; also arranged to produce a succession of one color display. Within the last few years, the last few seasons one might almost say, there has come into existence a school of garden colorists that, consciously or otherwise, is adopting and adapting the idea of impressionistic painting to floral planting. They are demonstrating that garden flowers arranged in close juxtaposition of color will produce, not kaleidoscopic polychrome effects, but the same amalgamation that occurs in impressionistic



A PATHWAY OF WIDE COLOR RANGE IN THE GARDEN OF
HENRY C. MARTIN, ESQ., AT GLEN COVE, LONG ISLAND.
HARRIE T. LINDBERG, ARCHITECT; CHARLES GALANTI,
GARDENER AND DESIGNER OF THE FLOWER SCHEME.



STRONG-LIGHT CHARACTER DISTINGUISHES THE GARDEN PLANTED BY BEATRIX FARRAND AT "HILLCREST," THE COUNTRY ESTATE OF MRS. WILLIAM A. READ.

painting; such gardens, moreover, will exhibit greater luminosity than those planted to flowers of a single color.

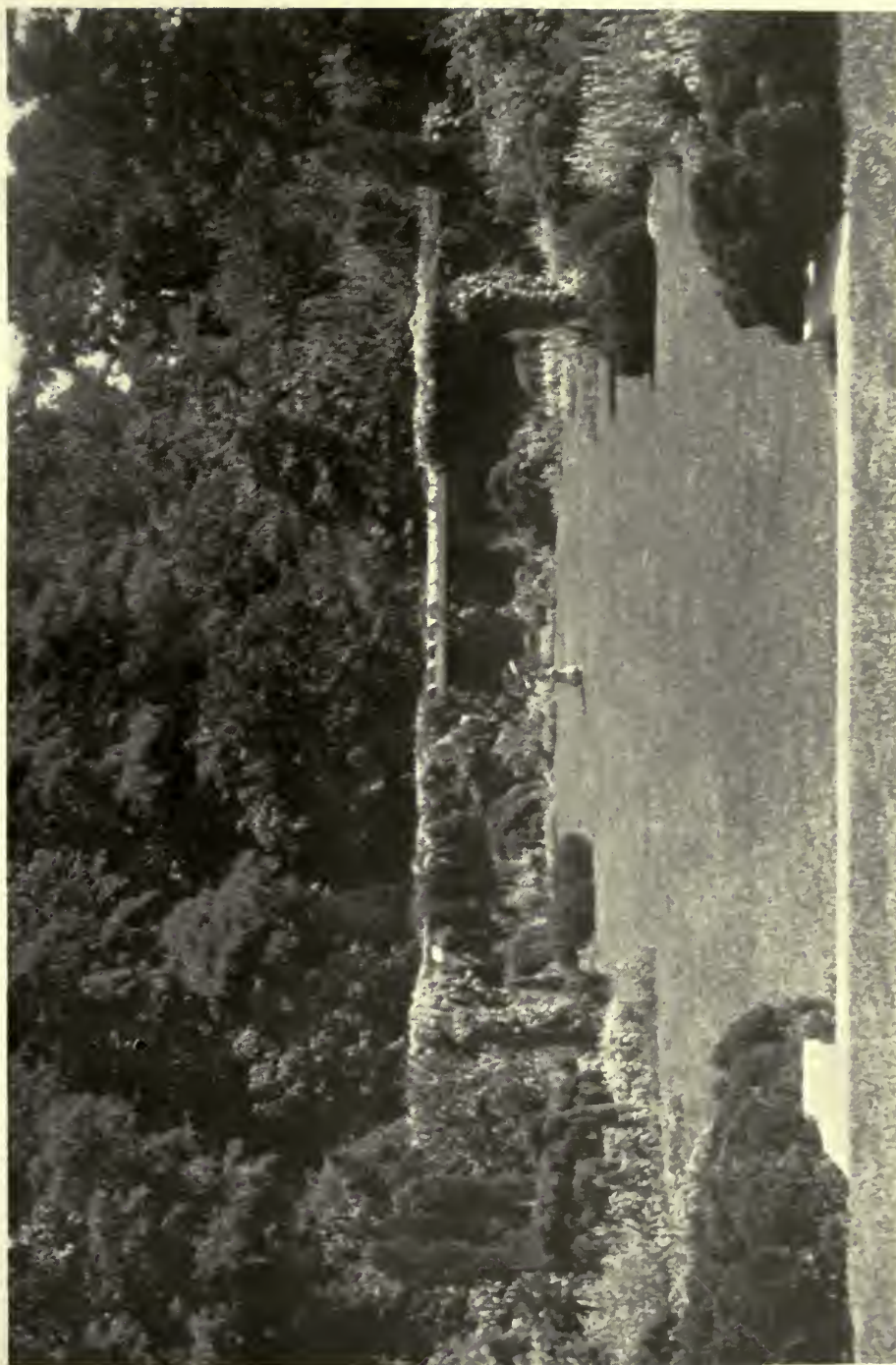
An example of such floral planting may be seen in the white rose and perennial garden at the country estate of Mr. Frederick Frelinghuysen, Elberon, New Jersey, designed by Marian C. Coffin. It is a box-edged circular garden with white polyantha roses surrounding a central sundial. White polyanthas, unlike hybrid teas, have a bushy growth of foliage and take kindly to the company of other flowers; they bloom luxuriantly in June and only a little less luxuriantly in September, exhibiting at both seasons such mass of blossoms as to warrant their use in the general garden as well as in the rose garden proper. But the unusual feature of the Frelinghuysen garden lies in the deep borders of perennials that enclose the polyantha display. Although white is the prevailing color of the garden, the perennial planting has not been limited to vari-

eties of absolutely white bloom. There are phlox of white petals but with scarlet centers, cream colored gladioli, yellowish snap dragons, lemon verbenas, daisy-like Boltonias, pale lilac asters and both wax and blush petaled anemones. By assembling in this garden flowers which give an effect of white rather than those that are absolutely without color in their bloom, a radiance is obtained, vibrant and stimulating in quality, quite different from the lusterless albino effect frequently observed in "white" gardens.

Closely related colors as in the paintings of Constable, Crome and Bonington are found to produce atmospheric effects in garden planting similar to those of painted landscapes. There is strong light in the terrace gardens of Mrs. William A. Read at "Hillcrest," Purchase, New York, where Beatrice Farrand has combined lupines with Dalmatian iris; there is gray-day character in the garden of Mrs. H. Otto Wittpenn at Bernardsville, New Jer-



MRS. ELLEN M. SHIPMAN HAS SECURED ATMOSPHERIC
EFFECT IN THE FLORAL PLANTING OF THIS GARDEN FOR
MRS. GORDON ABBOTT AT WEST MANCHESTER, MASS.



THE FLORAL BAYS OF THE NATURALISTIC GARDEN AT KEN
KLARE, THE COUNTRY ESTATE OF MRS. CLARENCE KENYON,
JR., AT GLEN COVE, LONG ISLAND, ARE PLANTED IN
TWILIGHT COLORS. CLARENCE FARDEL, GARDEN DESIGNER.

sey, where blue sage is bordered with ageratum and heliotrope.

It is in recently planted blue gardens that the difference between the old use of blue flowers and the new is evident, where recur the grays and mauves and lilacs, the atmospheric blues and violets and lapis lazulis to which the eye is accustomed in the Barbizon school of painting. The garden of Mrs. Clarence Kenyon, Jr., at Glen Cove, L. I., designed by Emile Fardel, illustrates atmospheric color. It is a naturalistic garden of box bushes and Mugho pines, enclosed with tall cedars and forest trees, where blossom, in the month of July, hosts of blue flowers. Nothing but blue, and yet not a blank mass of perfectly matched color as formerly seen in "blue" gardens but comprised of a myriad merging shades, bright morning glories, somber monkshood, the blue of anchusas and plumbago, the blue of bluebells, cornflowers and veronicas, all of which in combination soften the full light of noonday and invest the garden with the mystery of twilight shades whenever a sun shadow passes over the landscape.

The modern garden colorist does not limit himself to pale colors. Purple, rose and red are the basic colors of several essentially modern gardens. Mr. H. M. Hancock has an oval tulip garden at Passaic, New Jersey, in which Elsa Rehman brings together purple Marconi tulips with the cardinal red of the Professor Rauwenhoff variety. In the garden of Mrs. Gordon Abbott at West Manchester, Massachusetts, Ellen M. Shipman has combined deep rose zinnias with lavender phlox. In the garden of Edward W. Sparks on Park Avenue, Upper Montclair, New Jersey, a spring display of daffodils in wide range of color is followed by a summer planting of red and purple veenas. The garden of Mrs. Perrett, whose photographs illustrate this article, combines heliotrope and ageratum and red zinnias in as rich and strange effect as the Bakst color scheme of a Russian ballet. "Grayhampton," the country place of Mr. H. W. Croft at Greenwich, Connecticut, exhibits astonishing combinations of plum-

colored hollyhocks with blue veronicas. In the garden of Henry C. Martin at Glen Cove, Long Island, rose-violet cosmos and lavender-blue sage are companioned with plum balsam and cherry-red and maroon petunias.

In these richer colors the designer of flower gardens has a range of selection that is indeed inspiring. The Martin garden above mentioned, of which Harrie T. Lindeberg was the architect and Charles Galanti the gardener, is perhaps one of the most colorful of modern gardens. Not only are dark blue asters planted with such flowers as blue sage and lavender thistles, but there are combinations of yellow and red flowers that would have been considered insufferable in our one-time gardens. Greenish cream and buff zinnias, saffron and salmon dahlias, giant sunflowers are in the same scene with orange marigold, deep golden coreopsis, brilliant yellow calendulas, brownish yellow gaillardias. Injected in this wide gamut of yellows are reds as startling as the scarlet of the Mexican sage. The secret, however, that permits such striking combinations is that of the impressionistic painter; intermingled with the brilliant yellows and scarlets are the brownish red of heleniums, the plum of balsams, the magenta of straw flowers, the maroon of petunias. In such company of many colors the Mexican sage and sunflowers lose their individuality yet retain the brilliancy that gives vitality to the picture and renders it scintillating with light and palpitant with color energy.

It is in use of color of all intensities, the utilization of floral varieties, bar none, that new life has come into our modern flower gardens. The garden colorist to-day is finding guidance for his color schemes, not in color chart or printed rule but as did the master painters of the past century, in the color inspiration of the out-of-doors. He is keeping pace in garden planting with the impressionists, the luminarists and the leaders in the most modern schools of landscape painting.

• There is still much interesting experiment to be made in the use of the full spectrum of colors within any one garden, disposed with no purpose of pattern

design, with no consideration of the colors in themselves, but as the painter takes pigments from his palette, with thought only to their contributing value, with vision fixed upon the colorful picture to be accomplished. Both architectural and

naturalistic gardens have profited by the work of the garden colorists. In view of their accomplishment thus far, it is pleasant to realize that the acme of color decoration in the garden has not yet been reached.



THERE IS SOFT RADIANCE IN THE WHITE ROSE AND PERENNIAL GARDENS OF FREDERICK FRELINGHUYSEN, ESQ., ELBERON, N. J., AS PLANTED BY MARIAN C. COFFIN, RATHER THAN THE USUAL HARSH BRILLIANCE OF A "WHITE" GARDEN.



BANKING HALL—LAWYERS' MORTGAGE
COMPANY, NEW YORK CITY. RENWICK,
ASPINWALL & TUCKER, ARCHITECTS.

The
LAWYERS' MORTGAGE COMPANY BUILDING
♦♦♦♦ NEW YORK CITY ♦♦♦♦

RENWICK, ASPINWALL & TUCKER, ARCHITECTS

By Matlack Price

OF all the arts, architecture can depend least for its expression upon sheer inspiration; it is more inseparably related to some specific purpose than a painting or a piece of sculpture, a musical composition or a poem. And besides this domination of purpose over the architect's creative impulse, there are in most cases a surrounding array of restrictions as to site or cost or structural limitations.

If you told a painter he must execute his next heroic idea on a canvas of a certain size (much smaller than he had in mind); a sculptor that he must hew his next allegorical group from a block of marble of a certain limited cubical content; the composer that he may use only certain notes in his symphony; and the poet that he must confine his inspired epic to three pages, (eight by eleven inches each), these artistic gentry would feel cruelly put upon and, in all probability, would flatly refuse to produce unless all restrictions were removed.

Not so the architect, who must design and erect as fine a building, architecturally, as he can conceive, and who must design it to conform to a host of specific and essential requirements. The painter may elect to paint a "Diana" instead of a group of fruit, but when the architect is commissioned to design a bank, he cannot tell his client that he would rather do a theatre. He cannot even design the bank so that it looks like a theatre. Nor can he add forty or fifty front feet, one way or another, to the site to make room for just the building he would like to design.

All this may seem a little absurd, especially to professional readers, who will, however, certainly not resent it. The words will have been worth writing if even a few lay readers chance upon them. I have always thought that architects do not get their fair quota of appreciation,

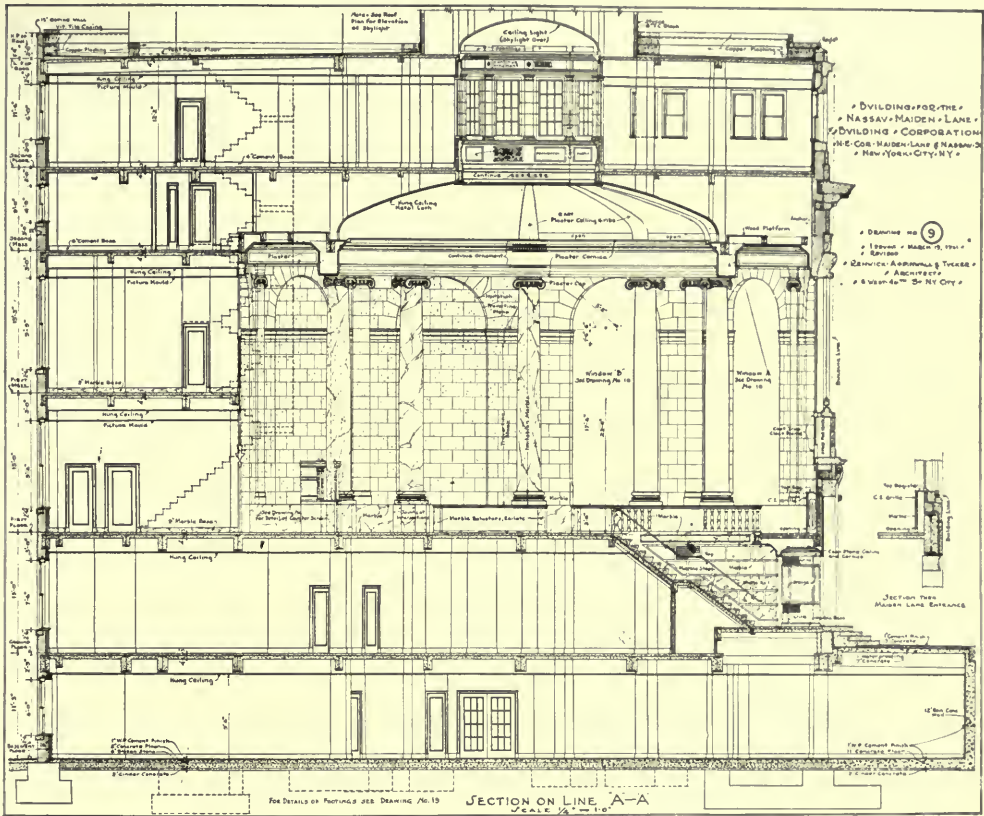
either from the public at large, or from other artists. They are trying, for the most part very conscientiously, to create the most noble of all forms of art under conditions that no other artists would accept.

Of a thousand people hurrying past the corner of Nassau street where, at Number 56, stands the new building of the Lawyers' Mortgage Company, probably not one—perhaps not one in five thousand—would pause to note, consciously, that some architect had there created a pleasantly dignified corner, a corner which not only improves the whole immediate vicinity, but is distinctly a credit to the institution which occupies the building.

But public indifference is not complete, nor is it oblivious to everything, to every message that *architecture* can convey, even if it be quite oblivious of the *architect*. Of this hypothetical (but no less real) throng of a thousand, or five thousand hurrying people who may pass this corner, not a few are subconsciously affected or even impressed by the building and all that it connotes and denotes. A very considerable number of these people feel that here is an institution of stability and dignity, pride in appearance, of self-respect—and, moreover, a business establishment so successful as to be prosperous, and so prosperous as to seek outward expression of its prosperity in impressive premises.

This statement of the favorable reaction of a generally indifferent public to architectural effect would be interesting enough if it were merely the statement of a conjecture or a theory. In the case of banks, trust companies, insurance companies and the like, however, there exists far more than mere conjecture.

Here are men whose business has grown from and whose continued prosperity depends upon the wisdom of their



The above section of this building, taken on the line "A-A" in the plan opposite, and studied in conjunction with it will tell much of the ingenuity which characterizes the solution of a problem made difficult by an irregular site. It will be seen that the entrance stairway brings the bank's client directly into a great rotunda, at a point practically equidistant from his objectives. The device of the circular colonnade was a brilliant means of effecting a symmetrical interior in an asymmetrical space. The intrusion of a corner of an adjoining building, seen in the upper right-hand corner of the plan, is but temporary, and the expiration of the lease of that property will see the circle completed, by a trifling bit of demolition and reconstruction. The section shows the ceiling treatment, and the overhead lighting of the rotunda by means of a lantern.

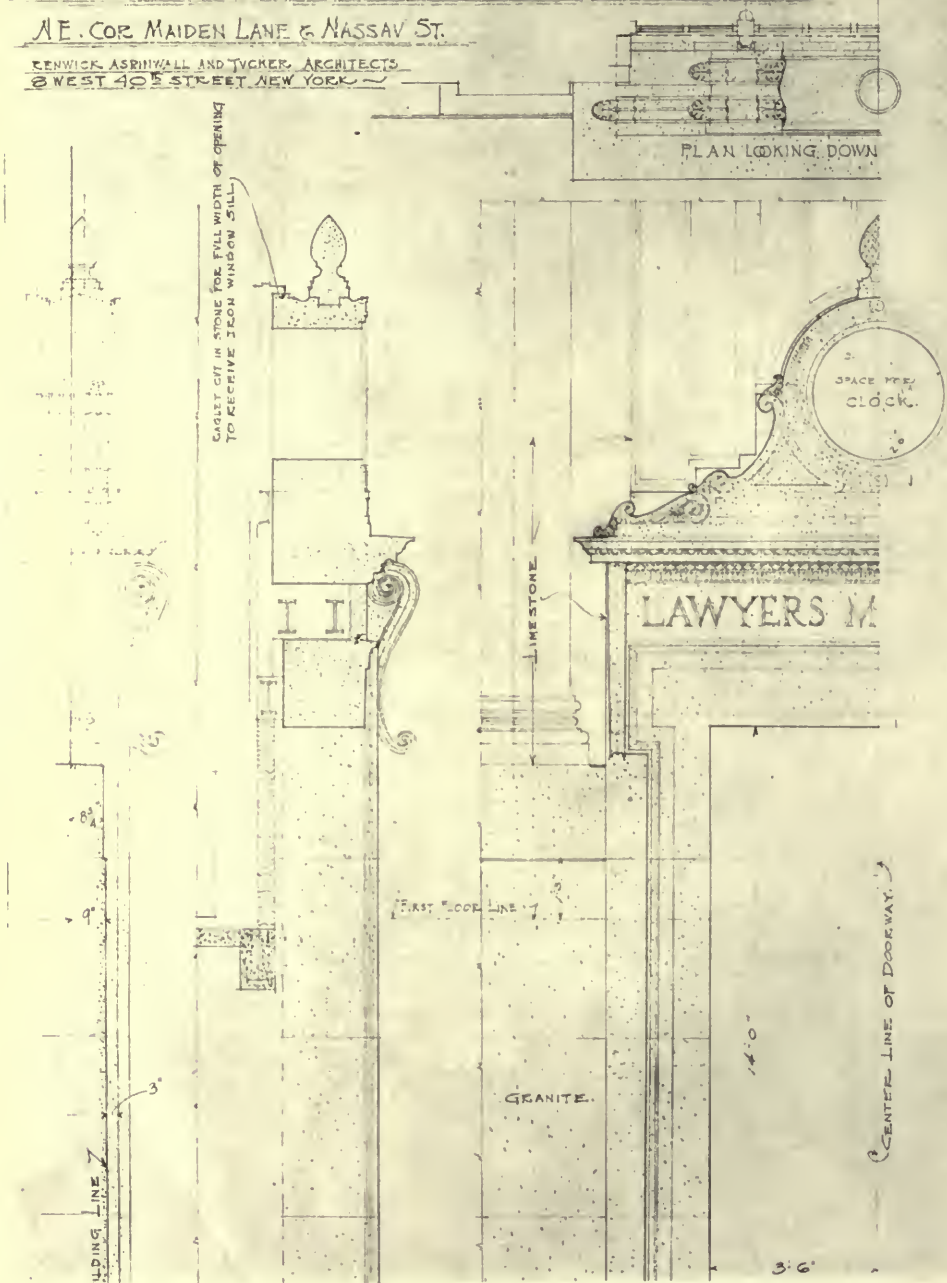
SECTION—LAWYERS MORTGAGE COMPANY, NEW YORK CITY. RENNICK, ASPINWALL & TUCKER, ARCHITECTS.

3/4 INCH SCALE DETAILS OF GRANITE WORK -

BUILDING FOR THE NASSAV-MAIDEN LANE BUILDING CORP.

N.E. COR. MAIDEN LANE & NASSAV ST.

RENWICK, ASPINWALL AND TUCKER, ARCHITECTS
2 WEST 40TH STREET, NEW YORK



DETAIL OF GRANITE WORK ON ENTRANCE—THE
LAWYERS' MORTGAGE COMPANY, NEW YORK CITY.
RENWICK, ASPINWALL & TUCKER, ARCHITECTS.



MAIN ENTRANCE—LAWYERS' MORTGAGE COMPANY, NEW YORK CITY. RENWICK, ASPINWALL & TUCKER, ARCHITECTS.



BRONZE COUNTER SCREEN—LAWYERS' MORTGAGE COMPANY, NEW YORK CITY.
Renwick, Aspinwall & Tucker, Architects.

investments. They are experts in investing their own money and the money of others in profitable ways—and to all such groups of men as compose the governing boards of banks, trust companies and the like, architecture is an *investment*. If it had not proved a paying investment, the business premises of banks would long since have ceased to possess the high order of architectural refinement that, throughout this country, distinguishes them from other business buildings.

Bankers, from the nature of their business, are not noted for their lack of intelligence, and they have been, perhaps, the most consistent group of builders to recognize and utilize the *advertising value* of good architecture. It is only within recent years that banks have to any great extent enlisted the services of advertising agencies to build prestige and to explain and proclaim their several advantages through the medium of the printed page. But for several generations back banks have advertised their stability and prosperity by enlisting the services of the best architects to secure buildings which would advertise these things to the whole community.

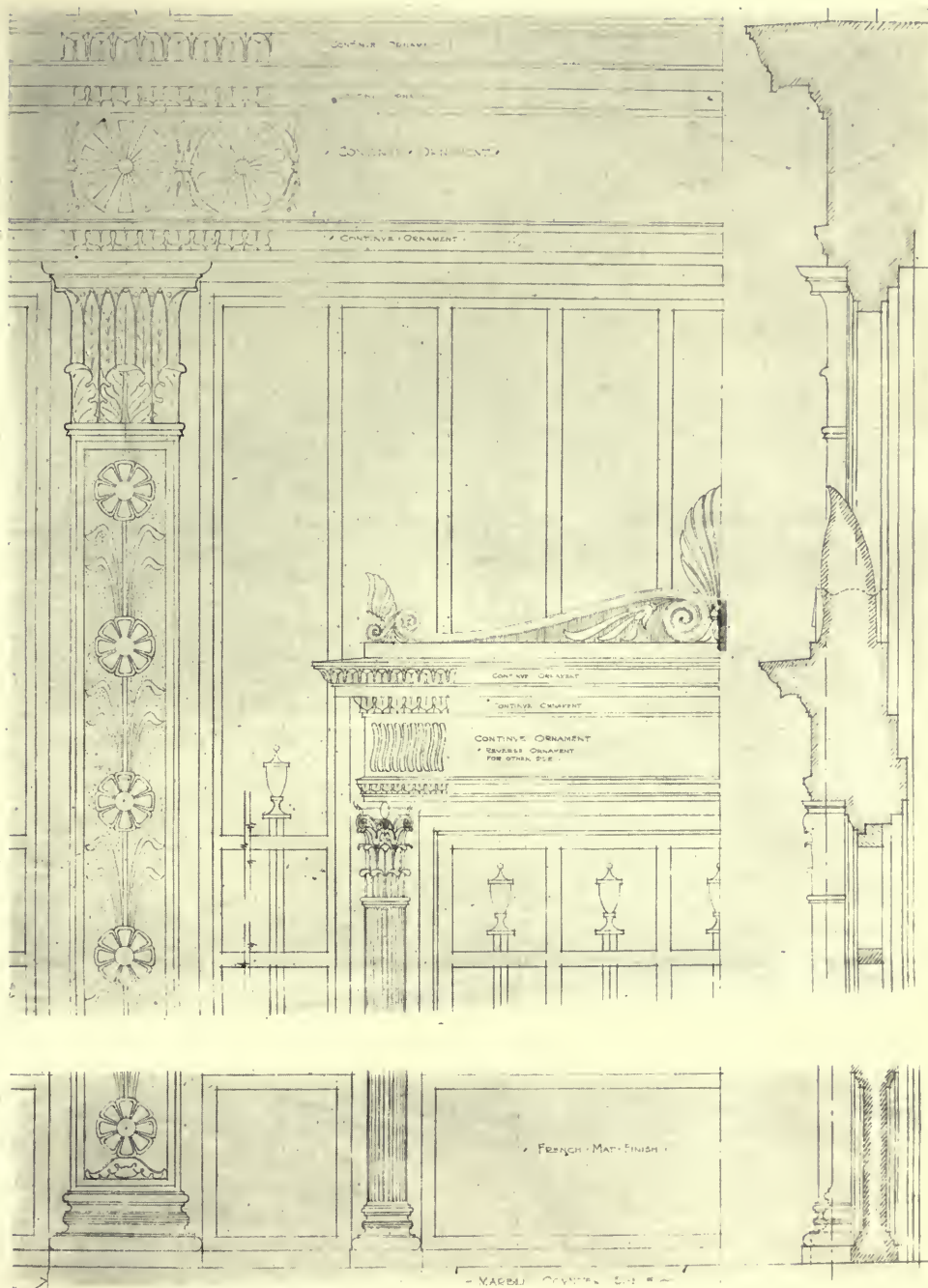
At the moment of writing this article, moreover, comes an additional confirmation of the statement that our architecture is actually regarded as an investment by a discerning few. In "Special Corre-

spondence" from the *Manchester Guardian* to *The World* the English newspaper tells the readers of the American newspaper what Professor C. H. Reilly, of the Liverpool School of Architecture, had to say in an opening address at the exhibition of American architecture at the city art gallery. I find, *inter alia*, this interesting passage:

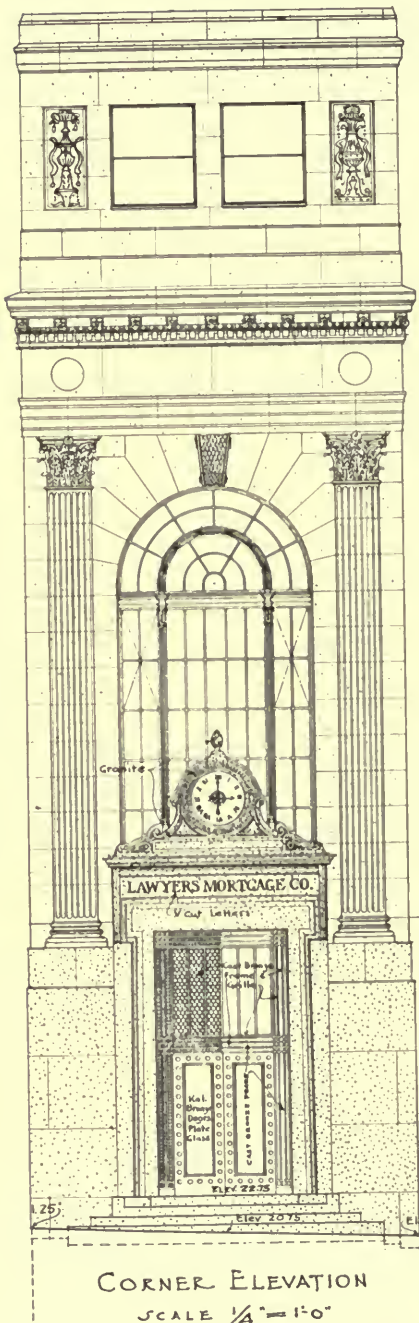
"In America there was a far larger public than there was in England which watched the careers of architects, and a far greater demand for architecture as a visible and noble expression of modern civilization. Railway companies, banks and commercial undertakings of all kinds seemed to realize, over there, that restrained and dignified building was the best advertisement of commercial soundness."

Nothing certainly could have been more apt or in train with the main thesis of this article, than the second sentence of this quoted paragraph—and it appeared in *The World* several days after the article had been written.

In passing, however, I feel impelled to disclaim, even though reluctantly, the Professor's generous attribution of our public interest in our architect's careers. However much our public may be interested in architecture either merely as a spectacle, or specifically as a business asset and advertisement, it has never



DETAILS OF BRONZE COUNTER
SCREEN—LAWYERS' MORTGAGE COM-
PANY, NEW YORK CITY. RENWICK,
ASPINWALL & TUCKER, ARCHITECTS.



accorded the architect any articulate recognition. Stop a hundred or five hundred people who pass the New York Public Library, or the Pennsylvania Station, and ask each who were the architects of

these buildings, and I doubt if one could tell you, or even admit he had ever thought about it.

But on the score of architecture as advertising, we are keenly awake.

This kind of advertising, the advertising value of good architecture, is psychologically sound in a country that demands the outward evidence of prosperity, in individual or institution, before it believes in the inward extent of the "cash capital." American business men, even minor executives and clerks, are probably better dressed than similar men in any country in the world—because we are a nation of advertisers. Many an assistant secretary—in fact almost any man of any business connection whatever in New York, would present a far better sartorial appearance than Herr Hugo Stinnes.

The architect can safely feel, when he is designing a bank building, that he is giving "value received," that the banker knows the architecture he is buying is a definite business asset, not an extravagance, and is therefore willing to pay for it and appraise it intelligently.

This fact, aside from the really remarkable technical skill and ability of our bank architects, may very well be regarded as the reason for so many admirably designed and finely built bank buildings throughout the country. This new building of the Lawyers' Mortgage Company is typical, perhaps a little better than typical, of the city banks of New York and of other large cities in other states. It is dignified without being pretentious, it possesses a high order of architectural refinement in general design as well as in detail, and the resourcefulness in the maximum utilization of a relatively small site is characteristic in general of the American architect of ability.

While academies and societies may bestow wreaths and medals upon painters and sculptors, architects can continue to feel that their art, architecture, "ancient of days," and the most authoritative of all the arts, is yearly receiving a definite and substantial reward in its recognition by the most broad-visioned group of business men of America as a business asset and a sound investment.



GENERAL VIEW—LAWYERS' MORTGAGE
COMPANY, NEW YORK CITY. RENWICK,
ASPINWALL & TUCKER, ARCHITECTS.



BANKING HALL—LAWYERS' MORTGAGE
COMPANY, NEW YORK CITY. RENWICK,
ASPINWALL & TUCKER, ARCHITECTS.





MEMORIAL WINDOWS IN "WARRIOR'S AISLE" IN THE NAVE OF SALISBURY CATHEDRAL. DESIGNED BY REGINALD BELL, LONDON. SCALE DRAWINGS PUBLISHED IN THE ARCHITECTURAL RECORD, APRIL, 1922—PAGES 356-59.



THE NEW LINCOLN HIGH SCHOOL, NEW YORK CITY. STARRETT & VAN VLECK, ARCHITECTS.



DETAIL OF SIDE ENTRANCE—THE NEW LINCOLN HIGH SCHOOL,
NEW YORK CITY. STARRETT & VAN VLECK, ARCHITECTS.



DETAIL OF MAIN ENTRANCE—THE NEW LINCOLN HIGH SCHOOL,
NEW YORK CITY. STARRETT & VAN VLECK, ARCHITECTS.



MAIN FACADE—THE NEW LINCOLN HIGH SCHOOL, NEW
YORK CITY. STARRETT & VAN VLECK, ARCHITECTS.



LOWER PORTION OF MAIN FACADE—FEDERAL RESERVE BANK, KANSAS CITY, MO. GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS.



GENERAL VIEW—FEDERAL RESERVE BANK, KANSAS CITY,
MO. GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS.



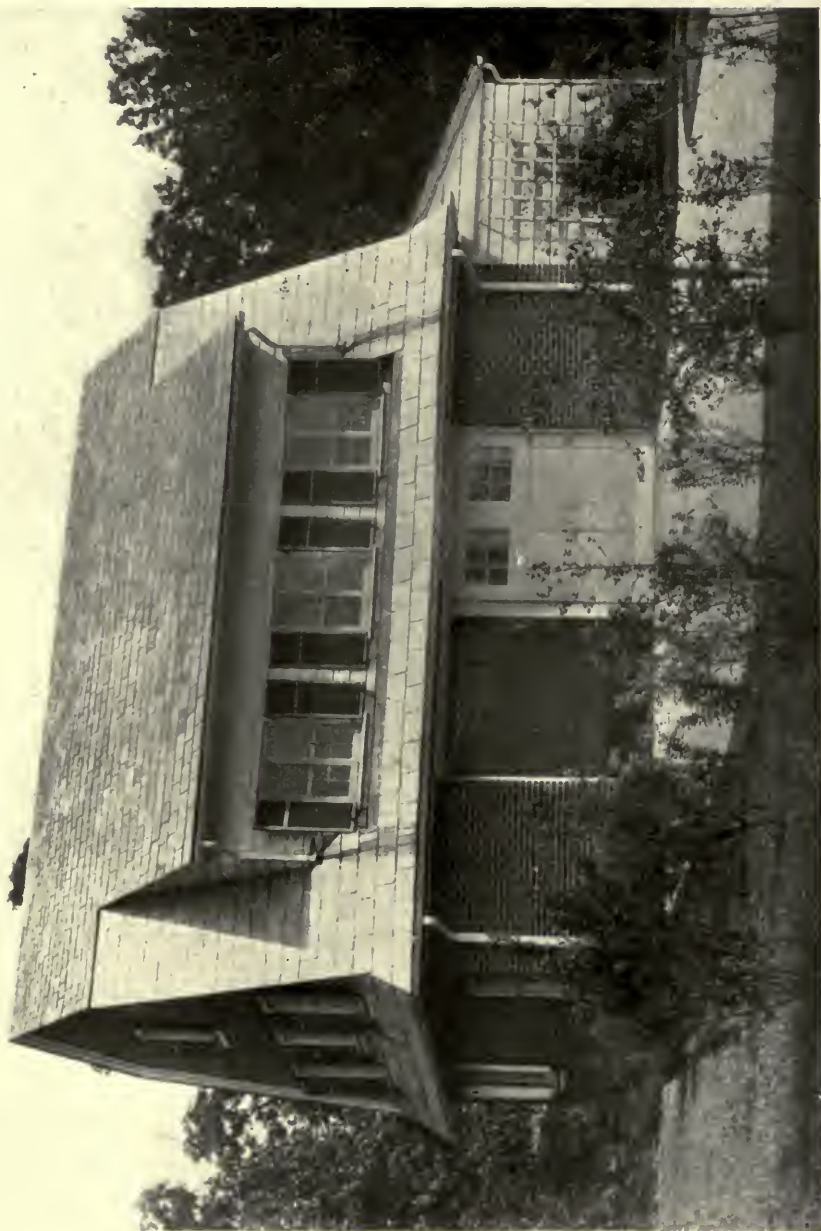
MAIN BANKING ROOM—FEDERAL RESERVE BANK, KANSAS CITY,
MO. GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS.



GENERAL VIEW OF A SMALL HOUSE ON LONG
ISLAND. FRANK J. FORSTER, ARCHITECT.



DETAIL VIEW OF A SMALL HOUSE ON LONG
ISLAND. FRANK J. FORSTER, ARCHITECT.



GARAGE—SMALL HOUSE ON LONG ISLAND.
FRANK J. FORSTER, ARCHITECT.



HOUSE AT ST. CLOUD, MINN. TYRRE & CHAPMAN,
AND J. M. HAMILTON, ASSOCIATED ARCHITECTS.



END VIEW—HOUSE AT ST. CLOUD,
MINN. TYRRE & CHAPMAN AND
J. M. HAMILTON, ARCHITECTS.



VIEW SHOWING STAIR WINDOW—HOUSE AT
ST. CLOUD, MINN. TYRRE & CHAPMAN
AND J. M. HAMILTON, ARCHITECTS.



EAST FRONT—THE COBBLES, WALTON HEATH, SURREY,
L. STANLEY CROSBIE, ARCHITECT.



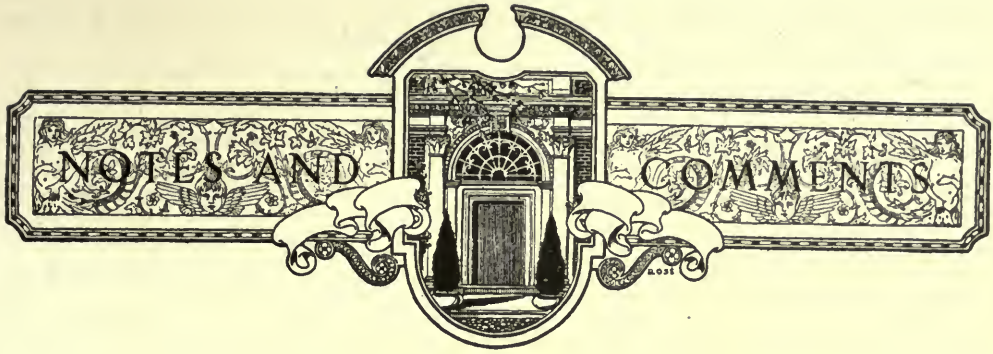
GARDEN FRONT — THE COBBLES, WALTON HEATH,
SURREY, ENGLAND. L. STANLEY CROSBIE, ARCHITECT.



RESIDENCE OF J. J. HAMILTON, ESQ., FIELDSTON, NEW YORK CITY. ILLUSTRATING THE GARAGE AS AN INTEGRAL PART OF THE HOUSE. DWIGHT JAMES BAUM, ARCHITECT. PHOTOGRAPH BY ANTOINETTE PERRETT.



RESIDENCE OF MISS E. V. MURPHY, FIELDSTON, NEW YORK CITY. ILLUSTRATING THE GARAGE AS AN INTEGRAL PART OF THE HOUSE. DWIGHT JAMES BAUM, ARCHITECT. PHOTOGRAPH BY ANTOINETTE PERRETT.



**Thirteenth
Annual
Convention of
The American
Federation of
Arts**

The Convention, held in Washington, D. C., May 17, 18 and 19, 1922, was preceded by an evening session held in the Memorial Continental Hall of the Daughters of the American Revolution. Robert W. de Forest, president of the Federation, presided. The speakers were: Chief Justice William H. Taft; Jules T. Jusserand, Ambassador of the French Republic; and Thomas Nelson Page, lately Ambassador from the United States to Italy.

"Coöperation is the keynote of success today," said Mr. de Forest, "and it was to secure coöperation in the arts that the American Federation of Arts was founded in 1910." The two points strongly emphasized in all the papers presented during the Convention were the power of art in every day life and the importance of offering to the young people of the country the very best opportunities for education in art, both for its cultural and for its vocational value.

One of the most inspirational features of the Convention was the discussion, from various points of view, of appreciation of art by the general public. Rossiter Howard, head of the educational work at the Cleveland Museum of Art, speaking on the topic, "Winning the People," said, in part, "We must help people to understand that art is a quality in the things we handle every day. Children are susceptible to beauty; let them act and draw and feel the quality of beauty in the best things. Give them beautiful fabrics and Tanagra figurines or American bronzes to draw from, instead of old broken cups and saucers.

"Encourage organizations to buy—people will find the money for what they really want. On the other hand, make the artist

realize that it is wiser to place a modest price on his work and ensure its message being carried into many homes. The artist, the teacher, the museum director must share their enthusiasm with the many if they hope to win the people."

The same thought was expressed in a different way by W. Frank Purdy, Chairman of the Industrial Arts Council, in his paper "Creating a Market," when he said: "An artist does not complete his work until his creation has found an appreciator: there is nothing ignoble in the fact that a painting or a piece of sculpture is for sale!" Mr. Purdy also called attention to the importance of reaching pupils in the private schools whose heart hunger for beauty is just as keen as those in the public schools. "In five years," he said, "these young people will be the buyers of the nation."

Royal Cortissoz, art editor of the New York Tribune, in his address on "The American Academy in Rome and That for Which it Stands," told of his being in Rome with Charles F. McKim. Looking across from one of the hills, McKim remarked, "How beautiful it all is!" "This," said Mr. Cortissoz, "is the underlying object of the Academy in Rome—that picked young men should have an opportunity to see 'how beautiful it all is'." The technique of painting can be learned in this country, but what is lacking is the stirring of the imagination. That art should be a little bigger, a little finer than ourselves, is the spirit that McKim wanted to cultivate. The Academy is a place that undertakes, not to teach but to inspire."

E. R. Bossange, Director of the College of Fine Arts, Carnegie Institute of Technology, Pittsburgh, told of the correlation of the Arts in that school. There are six departments: painting, sculpture, architecture, applied art, music, and drama and

these include eighteen courses. In addition to the technical work there are cultural subjects with four year courses that lead to the degree of B. A. The principle underlying the instruction is that all students should train the mind and the emotions as well as acquire technical ability. The history of civilization is taught in order that the spirit of the various periods may be understood. A general course in allied arts is given to all students: thus the painter, the sculptor, the decorator and the architect draw in the same studio, and the exchange of interests is most valuable. The decorator making period plates gains from the architect; the dramatist is able to conceive his costumes and reflects the spirit of the musician. Each type of artist thus shares the enthusiasm of those whose life work is parallel to his own, but along a different line of art.

The Beaux-Arts method is followed at Carnegie; that is, a definite idea is selected and gradually elaborated. Thus systematic, not haphazard work, is the business of the school, and the fundamentals are thoroughly mastered. "To bring all arts under one roof produces a background; it stimulates imagination and results in broader sympathies," said Mr. Bossange. "The general training and contact with local interests is preparing, it is hoped, men and women who have something to say and who have the power to interpret their ideas to others."

Huger Elliott, Principal of the School of Industrial Art in Philadelphia, emphasized the fact that the doctrine of design is needed by the painter and the sculptor as well as the technique of their profession. "Painters and sculptors seemingly work only for themselves without thought of the ultimate destination of their products," said Mr. Elliott. "In the Pennsylvania School of Industrial Art they are taught the principles of design, and are trained in the technique of the *specific* phase of art that they expect to follow. Each student has an opportunity to do every step of the work with his own hands just as it is being done in the shops. We are learning how to master the machine, and when we do this we shall be able to help the machine make beautiful things." Mr. Elliott pointed out that the movies are the most direct appeal to the people and that in Philadelphia the movies are being used to carry the message of art.

The part that the colleges should play in art education was brought out by Frank

Jewett Mather, Jr., Marquand Professor of Art at Princeton University. "The teaching of art in the colleges should be strictly academic," he said. "It is not the duty of the college to train artists but rather to develop discerning art lovers who shall encourage and support the arts. The work of art should be treated in its large relation to the man who produced it and the time that influenced him. A work of art is the strongest document of the time—the only reliable document that is handed down to future generations.

"The Alma Mater brings a perfume of the past. The college has the opportunity to open the old world to young men and women by giving a broad historical point of view upon which to base their judgment of the present. Let each group use its own advantage to the maximum," but not attempt that which its sister institution can do better."

A number of resolutions were presented during the course of the convention. After careful consideration by the Committee on Resolutions, the Convention adopted the majority. These resolutions, in condensed form, are as follows:

1. Favored the saving of the church in Albany, built in 1813, which a moving picture house is planning to ruin by removing the tower.

2. Endorsed the exhibition of American paintings, sculpture and decorative arts to be shown in Paris in the Spring of 1923 at the request of the French Ministry of Foreign Affairs and the Ministry of Beaux-Arts under the auspices of the following American Committee appointed by the French Government: Charles Butler, Chairman; Julian Clarence Levi, Secretary and Treasurer; Bryson Burroughs; Paul Cret of Philadelphia; and William Emerson of Boston.

3. Suggested to the College Entrance Examination Board that it include in College Entrance Examinations questions dealing with the graphic and plastic arts.

4. Requested the National Commissioner of Education and the Commissioner of Education in the several States to accord the subject of art the recognition for college entrance that it deserves as a major subject in the high school course of study.

5. Requested the appointment by the American Federation of Arts of a Committee to coöperate with the Committee on Education of the American Institute of

Architects to secure the adoption of the two previous resolutions.

The detailed report of the Federation's work was presented by the Secretary, Leila Mechlin. Among the many activities there were fifty-two exhibitions shown 256 times in 143 cities. They included paintings in oils and water colors; original etchings and other prints; photographs; industrial arts and the handicrafts; small sculpture; architectural views; and school work. The architectural group consists of the following series: 1. Photographs of town planning—37 charts; 2. Garden pictures—122 photographs; 3. Cathedrals—86 large photographs; 4. War memorials—100 photographs. The cost of these architectural exhibits is from \$10 to \$50 each; the exhibits of paintings and handicrafts vary from \$30 to \$300. The number of lectures circulated was 41 and they were given with lantern slides 127 times. A monthly publication, *The American Magazine of Art*, keeps the 313 chapters and nearly 3,000 individual members informed regarding current art activities, while the *American Art Annual* is the recognized book of reference in art in the United States. The headquarters of the Federation are in the Octagon at 1741 New York Avenue, Washington, D. C.

The following were re-elected members of the Board of Directors to serve until 1925: Helen C. Frick, Cass Gilbert, Francis C. Jones, R. P. Lamont, Charles Moore, Charles D. Norton, Duncan Phillips, Edward Robinson. Mrs. George Blumenthal and Thomas Nelson Page were added to the list of Vice-Presidents. The officers were re-elected as follows: Robert W. de Forest, President; Charles L. Hutchinson, Vice-President; Charles D. Norton, Treasurer; Leila Mechlin, Secretary.

FLORENCE N. LEVY.

"Side-Lights on Architectural Polychromy"

The question has been raised several times lately by architects, when discussing the various phases of procedure in architectural polychromy, as to the extent to which historic precedent should be followed when the development of color quality is under consideration. In Greek architecture, for example, archaeologists and chemists have determined with considerable accuracy those colors which were originally used. Similar research has been prosecuted with regard to colors used in the Gothic

periods. It must frankly be admitted that artistic enthusiasm is not spontaneously evoked, when we examine those polychrome works of the nineteenth or twentieth centuries which have been developed in complete accord with archaeological data: we refer to those of Pugin, Viollet le Duc, certain German buildings, such as those in Athens, and restorations in Gothic churches. When the main aim is to recreate the original effect, there is no latitude for choice; but if a distinct interest is sought the color problem is much more involved and subtle. In the first place, the fact must be appreciated that each distinct type of art expression is allied to a characteristic variety of color expression; the latter evolved in the effort to realize the decorative aspirations of the period. This is most convincingly demonstrated in those schools of painting in which expression grew spontaneously; it will also be found that a process of color evolution keeps pace with development in aesthetic perception, as the school passes through the phases that succeed each other from the primitive to the decadent. In the mediaeval examples of painting, tapestry, and stained glass, produced over a period of almost three hundred years, the gradual modification of a distinct type of color quality is very apparent. In the most virile works of that period the attraction exerted by pure vibrant color is unmistakable. With the advent of the Renaissance manner a complete reaction is sensed; decorative interest is centered in richness and delicacy of composite tone, showing a sentiment that differs essentially from that of their stylistic predecessors.

As technique and effect in architectural polychromy are at present indeterminate quantities, it is safer, whenever practicable, to take examples of the period as the basis for experimentation. The most desirable achievement would undoubtedly be to reflect in architectural polychromy that color sentiment which is revealed in modern painting and decoration. Our contact with the works of our contemporaries renders it almost impossible to identify their color characteristics, from the point of view of classification, beyond stating in a general way that our predominant sympathy in harmonies appears to incline to tone compositions in which composite colors are linked together by common color factors. The translation of this characteristic tonal quality into architectural decoration cannot be achieved by calculation or deduction; it can only result from the effort to materialize that which is felt to be the most fitting. Those who are endowed with color sense will be uncon-

sciously influenced by the predominant inclination in color selection and assemblage; and, when expression becomes fluent through experience, will undoubtedly reflect the spirit of the day in their work. As we are aware that our predilection inclines to those color groups in which the common color factor constitutes an element of harmonious relation, there is no reason why such a principle might not be utilized as a basis for the modification of the Greek or mediaeval palettes. This would involve the simplest form of procedure, in view of the fact that architectural effect admits only of the use of flat tones. With a palette consisting of reds, yellows, browns, black, greens and blues, a sub-tone of yellow could be introduced into the majority of these with sympathetic results.

When color modifications such as these are under consideration, a question arises as a natural consequence, "Which pigments are referred to?" The pigments which we will be compelled to use, for a variety of reasons, are high-temperature glazes on fired clay products. Commercial terra-cotta is the only material which is at present available for structures of big scale. It is a regrettable fact to record, but no terra-cotta manufacturer, in this or any other country, shows the remotest conception of the elements or composition of a palette meeting the barest requirements of architectural polychromy. For this astounding condition the manufacturer is not entirely to blame. The main responsibility rests with the architect, who gives this material only that casual consideration that is allotted to the cheaper substitute; many feel that its low price debars them from the right to ask for any form of artistic quality.

The deplorable condition of artistic undevelopment that exists in that industry is a direct result of the apathy of architects to the great decorative possibilities of this structural material. It is a peculiarity of American industries to find that, when the consumer has no appreciation of what a product might become with artistic treatment, no progress is recorded by the industry as a whole.

Many of the terra-cotta manufacturers employ chemists who are skilled in the compounding of glazes, but they are uninstructed, and without guidance, where a vital phase of their activity is concerned. They ignore the extreme importance of tone-value in decorative or architectural design, and that quality of color relationship which must be established

throughout a range of pigments, if harmonious color effect is to be made a possibility with their product. When systematically graded tone values and color series of definite character are demanded by the architects, as being essentials, the architectural value of this product will at once appreciate.

Much pioneer work must be performed before terra cotta colors are adjusted to the minimum requirements of architectural polychromy. Any architect who visualises a color effect for an architectural scheme becomes thoroughly discouraged; if he arranges a color scheme for, say, five colors, he may possibly find three that have the requisite tone quality and value, but the remainder are quite unacceptable by reason of their unadaptability in color character or strength.

Such a serious condition demands the closest collaboration between those who have clear vision of architectural requirements, and those who create the ingredients of effect. The architect is dealing with pigments which follow no rules in color mixing with which he is familiar: he must not assume that by choosing a yellow and a blue, that he will produce a green; he must realize that he is compounding a chemical mixture which, when fired, will probably produce a nondescript grey. This summarizes the most serious impediment to progress in the general use of color in architecture at the present moment.

LEON V. SOLON.

The Pennsylvania Academy of Fine Arts opened its Summer School at Chester Springs, Chester County, Pa., on April 17th, and will remain open until the second week in October. A very unusual opportunity is offered by the Academy for open-air instruction in drawing, painting, illustration and sculpture.

Mr. George Oberteuffer, who has spent a number of years studying in Europe, has been added to the faculty, and he will instruct in the landscape and portrait classes. In addition to Mr. Oberteuffer, Mr. Daniel Garber and Mr. Fred Wagner will teach the landscape class. The class in sculpture will be in charge of Mr. Albert Laessle, and the illustration class will be taught by Mr. George Harding.

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CARNEY'S CEMENT

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PLATE I—Represents the cornice model of a building recently designed. It illustrates the practical application in a modern work of the principles explained by Leon V. Solon in his treatise on architectural polychromy, published in this magazine. The value of the Greek method of color alternation is demonstrated, as is also the value of the Greek method of color separation by means of the decorative color fillet. The color values of the various members treated are graduated in strength from top to bottom. The ornamental contrast introduced in the color design of the torus molds follows the Greek precedent which is so admirably carried out on the Treasury of Gela. The structural material is a stone of an orange buff tone.

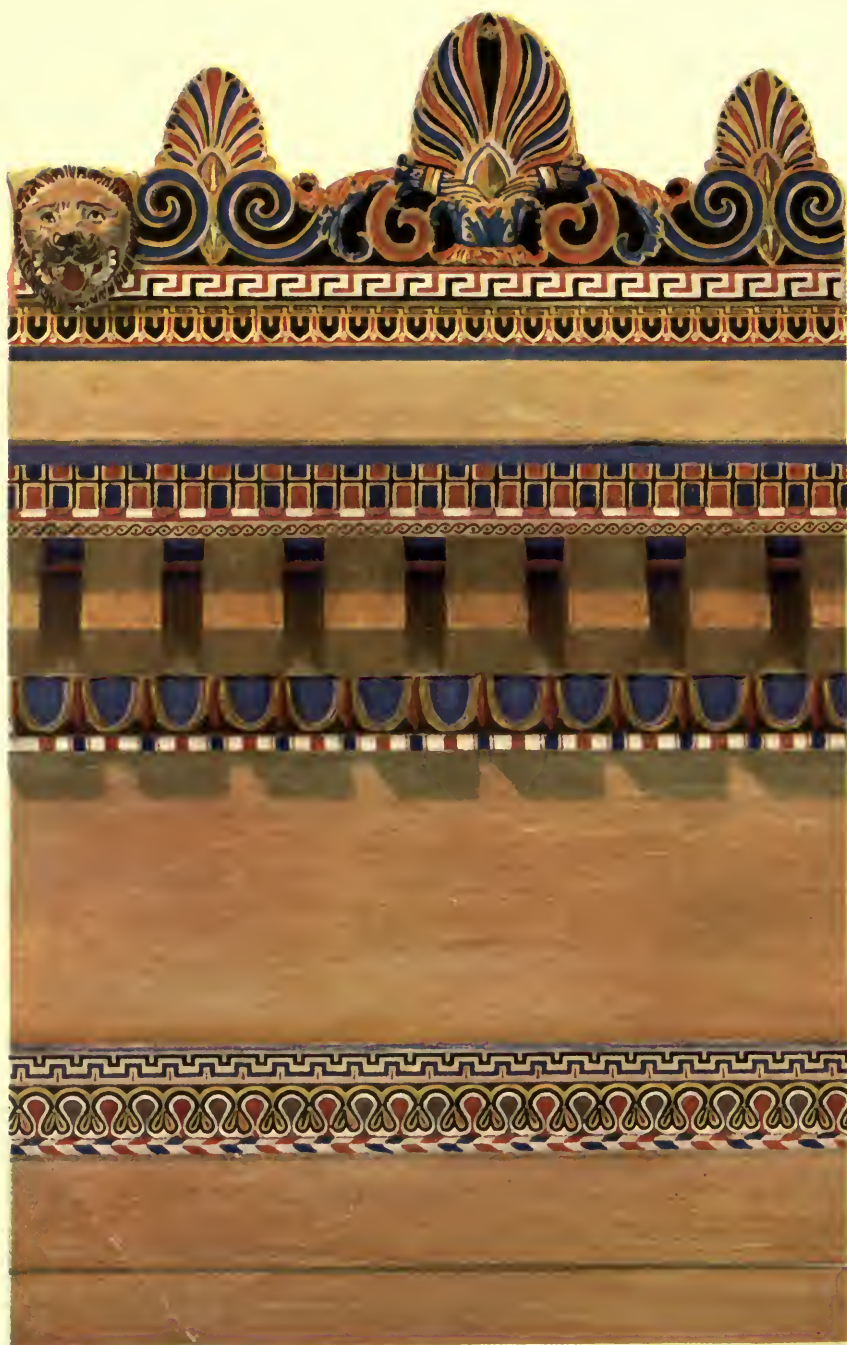


PLATE I—POLYCHROME TREATMENT OF THE CORNICE OF A BUILDING
NOW UNDER CONSTRUCTION



PLATE II—CAPITAL AND PILASTER CAPITALS OF THE SAME BUILDING

PLATE II—The Ionic capital is colored with red, dark and light blue, black, buff and gold. The gold encircles the collar of the shaft and extends a short distance down the flutes; the eye of the volutes is solid gold. As the pilaster caps are not structural members, but are essentially ornamental features, it was permissible to develop polychrome effect to the maximum extent; the colors are the same as on the capital.

c:
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EXTERIOR VIEW—RESIDENCE OF COLONEL
MICHAEL FRIEDSAM, NEW YORK CITY.
FREDERICK G. FROST, ARCHITECT.

87.

The
RESIDENCE of COLONEL MICHAEL FRIEDSAM
NEW YORK CITY. FREDERICK G FROST. *Architect*

By
Matlack Price

THE city house of today, a complex problem in planning under ordinary conditions, has enlisted the best efforts of the most capable of our architects for some years past. Through many stages of evolution the city house shed its earlier stupid planning, and realized a maximum of space and light—the two essentials—at the same time experiencing a steady change for the better in appearance. Poor economy of space and general lack of ingenuity and resourcefulness made the average city house of two score years ago a sorry architectural compromise.

Today the situation is different. The architect has triumphed over the inherent limitations and restrictions of the problem so completely that he is in a position to concentrate further resourcefulness and vision upon special requirements.

Such an opportunity was offered to Mr. Frederick G. Frost in designing a city house for Col. Friedsam, to house one of the greatest and finest private collections of paintings and other works of art in America. And not only was this collection to be housed, but the necessary galleries were to be a part of the house—not a formal, detached private museum. The fact that Col. Friedsam lives with his treasures, and humanly enjoys them as an intimate part of his life, was to be expressed in the design.

With this, a certain architectural dignity, even conventionality, was to be attained, and the illustrations give some idea of the success with which the architect's effort was rewarded.

From the street, the house presents an effect of the utmost restraint, being designed in the Italian manner, which has proved so pleasantly adaptable for urban use. There is, in this façade, an expression of the fact that there are important rooms on the *premier étage*, but the fact

is not exaggerated, or even entirely disclosed. There is, on the other hand, that non-committal, ultra-formal air which has come to mean good taste in city architecture. To achieve this, and at the same time to avoid the commonplace or the totally inexpressive, is not so easy as it looks, or the product of such a facile absence of effort as deceptively suggests itself at the first glance.

Within the Tuscan entrance, a grille and door of wrought iron admit one to the main foyer, where an impressive flight of stairs leads directly up to the galleries on the *premier étage*. These doors, as well as the wrought iron railings of the stair-well above, are from the forge of that remarkable metal-working genius, Samuel Yellin of Philadelphia.

The foyer hall, designed primarily for the display of tapestries, is of ashlar Rosata marble, and the entire treatment is of a splendid simplicity and restraint. From this hall the stairway carries directly up into the center of one of the spacious picture galleries.

These galleries, coming, as they do, between the entrance and the living rooms of the house above, are designed to eliminate the cold informality of the usual picture gallery, and seem, to a great extent, to have accomplished that end.

Fulfilling their purpose as picture galleries, they are pleasantly free from austerity, yet provide a maximum of unobstructed wall-space, and while they are harmoniously related *en suite*, they avoid the danger of monotony by means of different wainscot and cornice treatments. The center gallery is lighted from the base of the light court, and the front and rear galleries also share some of this, in addition to the light from the tall windows at the front and rear. The wainscotings are of walnut, and the walls covered with Rembrandt velours, which has been found



ENTRANCE DETAIL—RESIDENCE OF COLONEL
MICHAEL FRIEDSAM, NEW YORK CITY.
FREDERICK G. FROST, ARCHITECT.

to be one of the best possible backgrounds for paintings.

Above the floor occupied by this suite of galleries, the stairs are planned at the sides, in order that the spacious effect shall not be impaired. The hallway on the third floor, which is reached by this stair, is a pleasantly modified type of Italian treatment, made additionally interesting by the utilization of Col. Friedsam's antique painted glass of the 13th, 14th and 15th centuries. Swiss painted glass of the 17th century is effectively utilized in the same way in the corridor which gives access from the hallway to the rear part of the floor. The entire width of the house on this floor is given up to a great living room of which the central feature is the chimney

piece, a replica, executed by Hughes Tallemont, of the 16th century example in the Musée de Cluny in Paris. As one of the main purposes of this living room is a further display of paintings, the walls are covered with the same material used in the galleries.

So much for the tangible facts of the principal points of the house. A study of the block plans will give a perfectly adequate picture of the remaining facts of the plan, from the first to the fourth floors. The fifth and sixth floors contain the usual extra bedrooms, and accommodations for the servants.

What, further, of a nature not so tangible has the architect accomplished? He has rendered, certainly, the maximum of an architect's function to his client. The manifold conveniences, the innumerable ingenuities and devices of planning are,

eighty-nine

as usual, taken for granted, and are not apparent in the photographs of the finished work. They are, to be sure, definite facts in the fabric of the house as a whole, and few architects expect or wish special commendation for achieving the

things that are taken for granted.

But upon a foundation of mechanical, and perhaps routine, coördination of countless material items of plan and equipment, the architect has built values of a purely architectural nature.

He has achieved an expression of the owner's tastes and personality, of dignity and simplicity, in the setting for a famous and priceless collection of the best of the world's art of other ages and countries.

It is an unfortunate fact, so far as public education

is concerned, that the most intelligent and constructive criticism of architecture is likely to come only from architects. And professional etiquette builds its inevitable wall of restraint about their utterances. There are so many angles from which to criticize architecture, or to comment upon it, that the undertaking is one that is peculiarly baffling to the lay critic. An academic professor of architecture, whose detailed erudition far outruns his first-hand knowledge of actual architecture, might learn an astonishing amount if he could but spend a few months in the draughting room of a large architectural office. There the casual conversation of the draughtsmen, as they ply the T-square and pencil, especially the "veterans," abounds in keen and incisive criticism of the first water. If a building



DETAIL OF IRON ENTRANCE DOOR.



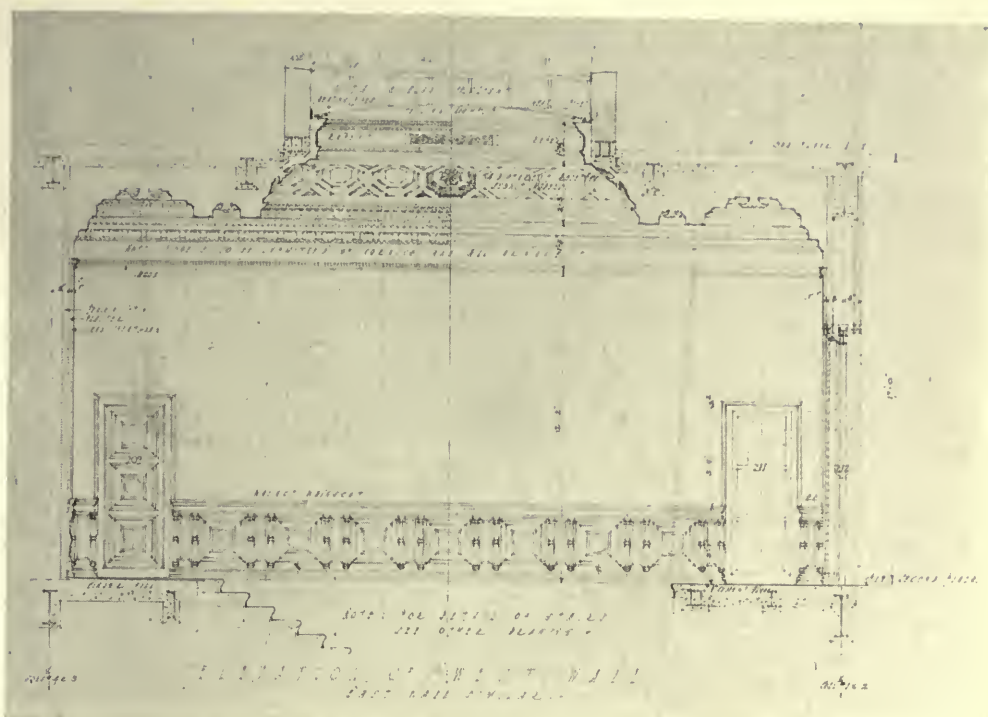
MAIN HALL, WITH GRILLE AND TAPESTRY—
RESIDENCE OF COLONEL MICHAEL FRIEDSAM, NEW
YORK CITY. FREDERICK G. FROST, ARCHITECT.



STAIRWAY FROM FIRST TO SECOND FLOOR—
RESIDENCE OF COLONEL MICHAEL FRIEDSAM, NEW
YORK CITY. FREDERICK G. FROST, ARCHITECT.



DETAIL OF MAIN HALL—RESIDENCE OF
COLONEL MICHAEL FRIEDSAM, NEW YORK
CITY. FREDERICK G. FROST, ARCHITECT.



ELEVATION OF WEST WALL—RESIDENCE OF COLONEL MICHAEL FRIEDSAM,
NEW YORK CITY.

Frederick G. Frost, Architect.

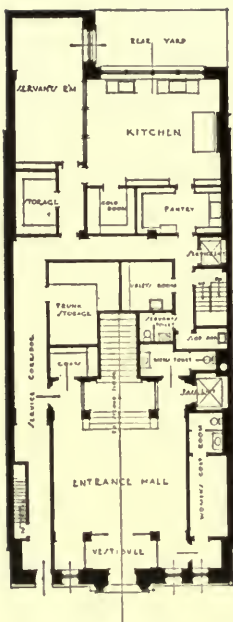
under discussion has in it any hidden insincerity, any cleverly concealed inaptitudes, the draughtsman is quick to detect them and name them, free from the unwritten convention of professional etiquette which forbids the unreserved comment of the practicing architect. And the recognition of merit is as unerring and as freely given by the draughtsman as his commentary on faults.

The point of this digression is a real one and an important one. There are many features of this city residence for Col. Friedsam which could be fully appreciated only by architects or designing draughtsmen. They see any building first from the angle of the problem involved, then from the angle of its solution. The lay critic seldom thinks of a building as a problem, and thinks of it subjectively rather than objectively. If he sees in it anything of the problem, it is in a remote and impersonal way, and not in the definite way necessitated by having to solve

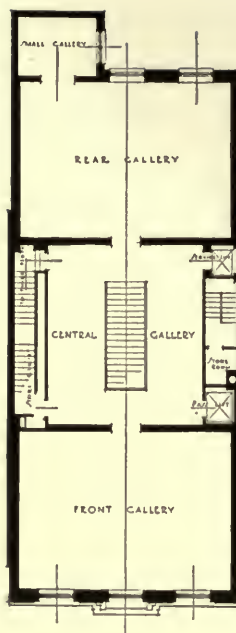
the problem and work out the design.

The most conspicuous problem presented by the city house illustrated in these pages consisted, obviously, of the planning and treatment of the picture galleries in such a manner as to relate them to the house as a whole. The value and importance of the works of art for which the rooms were planned made it necessary to subordinate certain features of the house because the galleries are more important than anything which could have taken their place. The disposition of all the other rooms in the house will be seen to be governed by the galleries as the main and central fact. To have arranged the plan otherwise could have been, at best, but a compromise with the fundamental requirements of the owner.

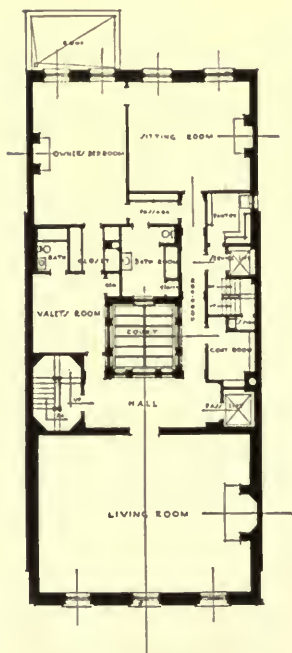
The dignified simplicity of the exterior adds further corroboration to the writer's belief that the days of showy and ostentatious residential architecture are on the wane, if not actually gone. The same



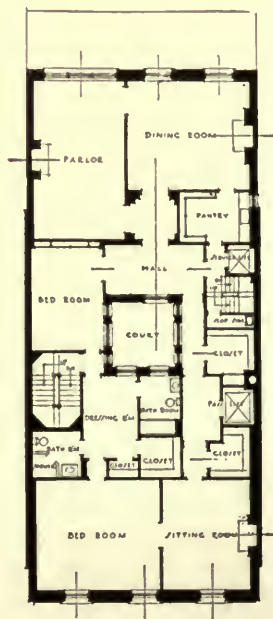
FIRST FLOOR PLAN



SECOND FLOOR PLAN



THIRD FLOOR PLAN



FOURTH FLOOR PLAN

RESIDENCE OF COLONEL MICHAEL FRIEDSAM, NEW YORK CITY. FREDERICK G. FROST, ARCHITECT.



FRONT GALLERY ON THE SECOND FLOOR—
RESIDENCE OF COLONEL MICHAEL FRIEDSAM, NEW
YORK CITY. FREDERICK G. FROST, ARCHITECT.



CENTER GALLERY ON THE THIRD FLOOR—
RESIDENCE OF COLONEL MICHAEL FRIEDSAM, NEW
YORK CITY. FREDERICK G. FROST, ARCHITECT.



LOOKING FROM FRONT GALLERY, ACROSS STAIR-
WELL INTO REAR GALLERY, ON SECOND FLOOR—
RESIDENCE OF COLONEL MICHAEL FRIEDSAM, NEW
YORK CITY. FREDERICK G. FROST, ARCHITECT.



REAR GALLERY ON THE SECOND FLOOR—
RESIDENCE OF COLONEL MICHAEL FRIEDSAM, NEW
YORK CITY. FREDERICK G. FROST, ARCHITECT.



DETAIL OF STAIR NEWEL—RESIDENCE OF
COLONEL MICHAEL FRIEDSAM, NEW YORK
CITY. FREDERICK G. FROST, ARCHITECT.



HALLWAY ON THE THIRD FLOOR—RESIDENCE
OF COLONEL MICHAEL FRIEDSAM, NEW YORK
CITY. FREDERICK G. FROST, ARCHITECT.



HALLWAY ON THE THIRD FLOOR—RESIDENCE
OF COLONEL MICHAEL FRIEDSAM, NEW YORK
CITY. FREDERICK G. FROST, ARCHITECT.



LIVING ROOM ON THE THIRD FLOOR—RESIDENCE OF COLONEL MICHAEL FRIEDSAM,
NEW YORK CITY.

Frederick G. Frost, Architect.

tendency was apparent in the large but admirably unostentatious town house of Mr. Thomas W. Lamont, by Walker & Gillette. It seems that there is a definite move away from the old idea of effecting in terms of architectural elaboration an expression of every dollar expended upon the house. Expenditure is managed nowadays with much better taste, and the pure architectural rendering of the dwellings of wealthy Americans seems full of a new promise. Architecture no

longer need attempt to perform functions outside its proper esthetic scope, and the architect has a new freedom in expressing architecturally only such aspects of a building as are the most appropriate and the most essential.

Good taste and good judgment alike forbade the architect of Col. Friedsam's house to put his architecture in competition with the works of art for which it is properly no more than a beautifully suitable and adequate setting.





GENERAL VIEW—FIRST NATIONAL BANK, JERSEY CITY, N. J. ALFRED C. BOSSOM, ARCHITECT.



LOWER PORTION OF ENTRANCE FAÇADE—FIRST NATIONAL BANK, JERSEY CITY, N. J. ALFRED C. BOSSOM, ARCHITECT.



MANTEL IN DIRECTORS' ROOM—FIRST
NATIONAL BANK, JERSEY CITY, N. J.
ALFRED C. BOSSOM, ARCHITECT.



PART OF MAIN BANKING HALL—FIRST
NATIONAL BANK, JERSEY CITY, N. J.
ALFRED C. BOSSOM, ARCHITECT.



DOORWAY IN DIRECTORS' ROOM—
FIRST NATIONAL BANK, JERSEY CITY,
N. J. ALFRED C. BOSSOM, ARCHITECT.



ENTRANCE TO THE VAULT—FIRST
NATIONAL BANK, JERSEY CITY, N. J.
ALFRED C. BOSSOM, ARCHITECT.



WESTBURY CHAPEL, WESTBURY, LONG ISLAND. JOHN RUSSELL POPE, ARCHITECT.



WESTBURY CHAPEL, WESTBURY, LONG
ISLAND. JOHN RUSSELL POPE, ARCHITECT.



WESTBURY CHAPEL, WESTBURY, LONG
ISLAND. JOHN RUSSELL POPE, ARCHITECT.



RESIDENCE OF MRS. J. H. ALEXANDER, GLEN HEAD,
LONG ISLAND. WARREN & CLARK, ARCHITECTS.
MARIAN C. COFFIN, LANDSCAPE ARCHITECT.



DETAIL OF ENTRANCE—RESIDENCE OF MRS.
J. H. ALEXANDER, GLEN HEAD, LONG
ISLAND. WARREN & CLARK, ARCHITECTS.



DETAIL SHOWING THE WELL—RESIDENCE OF MRS. J. H. ALEXANDER, GLEN HEAD, LONG ISLAND. WARREN & CLARK, ARCHITECTS. MARIAN C. COFFIN, LANDSCAPE ARCHITECT.



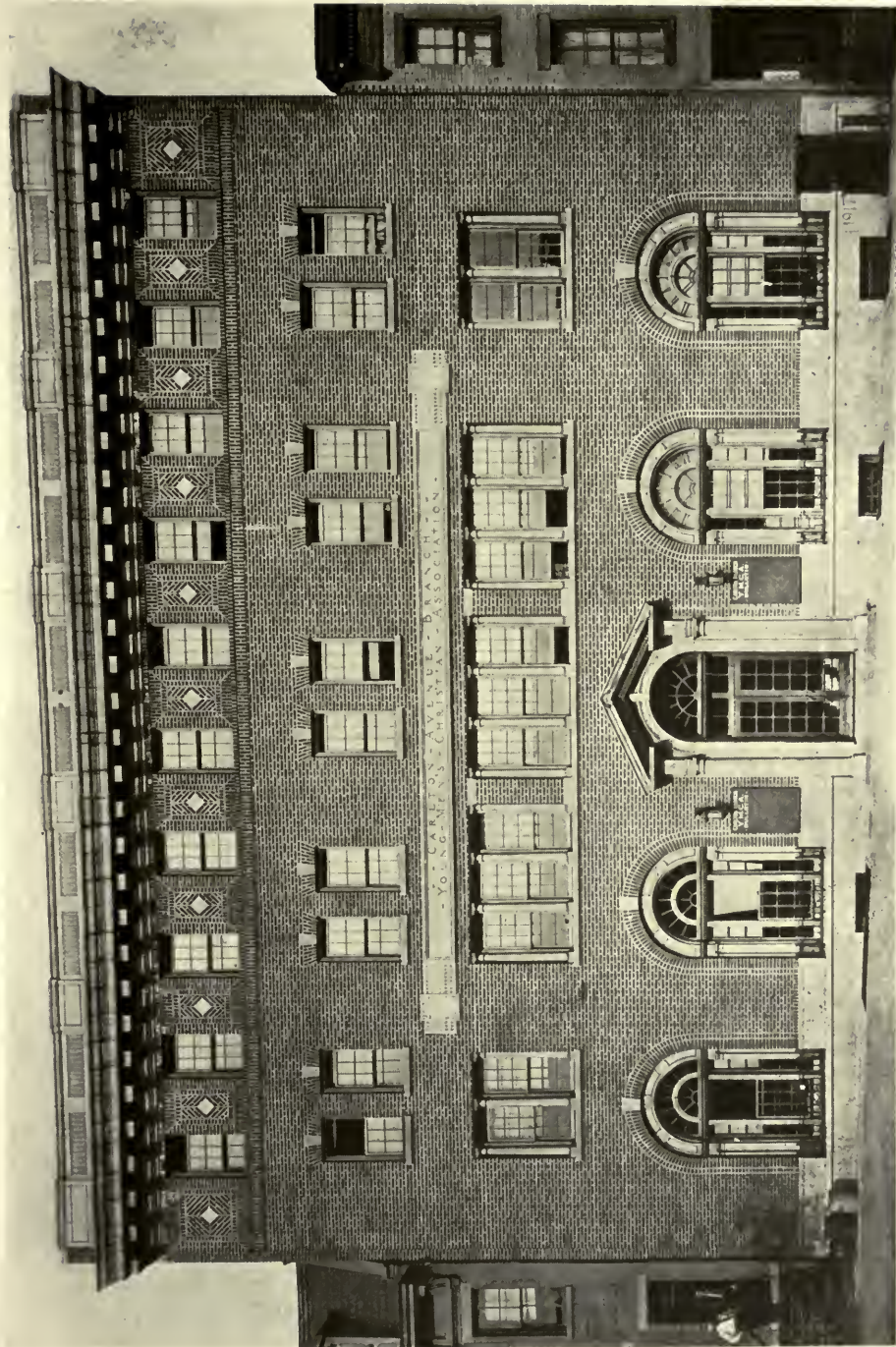
THORNTON-SMITH CO. STORE, TORONTO, ONTARIO. INDIANA
LIMESTONE FAÇADE. JOHN M. LYLE, ARCHITECT.



BARNs—ESTATE OF E. S. CLARKE, ESQ., COOPERSTOWN,
N. Y. FRANK V. WHITING, ARCHITECT.



FARM BUILDINGS—ESTATE OF E. S. CLARKE, ESQ.,
COOPERSTOWN, N.Y. FRANK P. WHITING, ARCHITECT.



CARLTON AVENUE BRANCH Y. M. C. A., BROOKLYN,
N. Y. LUDLOW & PEABODY, ARCHTCTS.



RESIDENCE OF MRS. MARY McKELVEY, SPUYTEN
DUYVIL, N. Y. JULIUS GREGORY, ARCHITECT.

The Fifty-Fifth Annual Convention of The A. I. A. ~



By Harvey Wiley Corbett

Important things with a national or international influence are apt to seem uninteresting. This is true of the deliberations of architects as of other assemblages. The discussion of a projected idea of even such potential importance as the improvement of living conditions is, on the face of it, apt to be something of a bore.

One would not, therefore, expect to find that part of the annual convention of the American Institute of Architects (Chicago, June 7, 8, 9) which was devoted to the routine business of the convention, to have been of a lively character. But beyond all doubt, it demonstrated the increasing national influence of the architect.

Like many other organizations in recent years, the Institute has emerged from the status of a small and strictly professional body into spheres of national influence. Upon its members rests a national responsibility. It will be called upon more and more to establish broad principles for the improvement of housing, living and working conditions in America.

What influence will the convention have upon the art of architecture? What change or improvement will it effect in the architecture of America? The answer, of course, is one of opinion. But to my mind its most important result in this respect lies in unifying the art effort of the profession. Its real value lies in the association of its members with one another, in bringing the Eastern, Mid-Western, and Western men together, and in encouraging the interchange of opinions and ideas. This result is reached more through the informal contacts than in

the deliberate proceedings. It is obtained not through a single convention, but through the constant association of ideas. In a word, it standardizes the architectural opinion of America.

This standardization of architectural opinion can be illustrated: The direct act of the American Institute of Architects, in awarding the medal of the Institute to Mr. Henry Bacon, architect of the Lincoln Memorial, places the highest stamp of approval upon that work as a perfect piece of architecture. The Lincoln Memorial is a very striking example of rigidly classic architecture. The award, therefore, stamps the tendency of American architects towards the conservative. This judgment is buoyed up by foreign opinion. By foreign architects, America, although a young and vigorous nation, is regarded as essentially conservative in architecture. To the Bolsheviks in architecture we are reactionaries.

What influence is the convention calculated to have on the practice of architecture? I cannot better illustrate my impression than to state that the report of the Committee on Education is the most important feature of the Convention. I earnestly advise members to read it carefully, if they have not already done so. The effort taken to surround the teaching of architecture with conditions that cannot fail to help students, to increase the preliminary cultural work, and to raise the standards of instruction, must have a nation-wide influence. To carry out this program, Mr. C. Howard Walker, of Boston, was engaged to visit faculties of colleges throughout the United States, and personally address

them to the end that the university faculties themselves may carry forward the many broad aims of the Committee on Education. The direct personal missionary work among the faculties themselves by a man of Mr. Walker's calibre, is bound to have a lasting influence.

I may mention another phase of the influence of the Convention upon the practice of architecture. And in referring to the Convention I include the movement which it represents and inspires. The American Federation of Labor agreed to abide by the decisions of the Board of Jurisdictional Awards, on which member of the American Institute of Architects sits. I might illustrate this by the question of such a thing as pipe railings. Who should put these on? The plumber, the steamfitter, or the ironworker? Frequently a dispute of this kind had resulted in all the men going on a strike. A number of awards have been made in questions of this kind, and the Unions have abided faithfully by them.

The question was raised: was the American Institute of Architects deciding an issue between labor and the open shop? The answer was no, because the issue only arose where Union labor was concerned, and the question was, which men of several Unions should handle the work in question.

It is not possible to touch upon all phases of the Convention, upon the exhaustive and careful reports that were submitted by the Committees or the work that underlies them. I can only here mention the spirit of the Convention. Community planning, structural service problems, war memorials, registration of architects and coöperation with the Fine Arts Commission, Education and many other topics were reported by the Committees.

Now as to public welfare. It has been demonstrated beyond any doubt that the Institute has taken up a definite ideal of service. I might illustrate this by the work of the Small House Bureau, which is undertaking to standardize plans, to direct, help, and improve the very small-

est simple type of dwelling. As a whole, the American Institute of Architects represents the cream of the architectural profession of America. Its endeavor to standardize the movement for the beautification and improvement of small homes may be compared to the effort that would be put forth if the most expensive Fifth Avenue tailors were to concentrate their endeavors towards improving inexpensive ready-to-wear clothes.

A year ago the Institute received twenty-five thousand dollars from an anonymous donor to be devoted to the cause of architectural education. For a long time it was not found from whom the money came. In Chicago it was announced that Mr. D. Everett Waid, the architect, who is known to every member of the A. I. A. for his devoted spirit of service, had made the donation. Architects are not rich men. This donation certainly meant a greater sacrifice to the architect than a million dollars would have meant to a Rockefeller, and it certainly meant more to the Institute than a million dollars would have done. Yet only a few years ago "Joe" Cannon got up in Congress and asked, "What is an architect?"

In concluding, I may say that the attitude of the Institute toward this question of service and its cheerfully self-imposed obligation to the community, recalls a story.

From the South not long ago I received a letter from an ambitious and really talented young architect who had been in some of my courses at Columbia. He outlined his plans and work quite fully, and concluded by asking, "Would you advise me to join the American Institute of Architects? What can I get out of it?"

The question was a poser. At first I was at a loss as to how to answer him. But when I cogitated upon the spirit of service that animates the Institute, the answer came readily enough—"It is not what you can get out of the American Institute of Architects that counts; it's what you put into it."

The EARLY ARCHITECTURE of PENNSYLVANIA

PART XIII - Ironwork



By A. LAWRENCE KOCHER

“**T**HY God bringeth thee into a good land,” wrote William Penn, “of brooks of water, of fountains and depths that spring out of valleys and hills, a land whose stones are iron, and out of whose hills thou mayst dig brass.” A continued encouragement was given by Penn to the rumors of “minerals of iron and copper in divers places.” “I am glad,” he writes to his secretary, James Logan, “that mines so rich are so certainly found, for that will clear me of all other encumbrances, and will enable me to reward those that have approved themselves faithful to me and my just interest.” Penn had iron beds of his own at Hawkshurst in England and appreciated the significance of the discovery. The first iron works in Pennsylvania was established in 1716 by an English Quaker and ironsmith, Thomas Rutter, who built a forge on Manatauny Creek, near Pottstown. It was not long before the province was dotted with forges and furnaces, busily smelting the newly discovered iron deposits into square bars of pig iron and rounded “blooms”. These products were transported by wagons and animal-back to Reading, Lancaster, Philadelphia and other towns for the purpose of manufacturing and for export to England.

Having been thus favored by circumstance with an almost unlimited wealth of iron ore, it is to be expected that the province would contribute materially to the host of industries and crafts that are dependent upon this metal for their prosperity.

The manufacture of hand-wrought nails was one of the first activities to come into flourishing existence. We are told that the aggregate of nails produced throughout the Province, in small nail-

eries conducted by common blacksmiths or others, was probably very considerable. It was one of those branches in which the country earliest became independent of British supplies.*

Iron entered into the making of many other local needs, including bolts, straps, hinges, anchors and implements for tilling the soil. Of more special interest to us now are such products of the blacksmith's hammer as wrought iron railings and grilles and fireplace fittings. These possessed, in a large degree, a rare attractiveness which raises them above the merely utilitarian or the commonplace. The exact nature of this contribution was expressed in terms of craftsmanship, so that it will be proper to dwell somewhat upon the peculiar characteristics and aims of the art.

The success of true craftsmanship resides in the fitting union of utility and beauty. Neither utility nor beauty can be an end in itself—a point of view often overlooked in these days when the artist is so seldom the craftsman. We have come to look upon use and beauty as an “unnatural bondage”. The acute specialization in art, as in many other items of our living, has tended to place art on a higher plane, as something beyond and distinct from the more utilitarian and plebeian (by implication) crafts, and has created the term “fine arts.”

The design of a chair or a piece of iron work should be associated with the execution of that design, for it is an axiom in art that both the conception of a design and the work necessary to execute it should be done by the same individual. “Decoration is the most natural expression of an artist's feeling for his

*J. L. Bishop, “A History of American Manufacture from 1608-1860,” p. 143.



WROUGHT IRON HAND RAIL—SOUTHEAST CORNER OF SEVENTH AND SPRUCE STREETS, PHILADELPHIA.

material; it is vitalized by energy which is behind the tool, and is addressed to the senses of seeing and feeling.”* Only in this way can the propriety and suitability of a wrought design to its location be achieved. As Ruskin has pointed out, “the greatest art in the world was done for its place and in its place.” The art of iron working is utilitarian in its aims, but it achieves beauty from its suitability and from what is known as the joy of creative work.

The fashioning of wrought iron is as direct as the efforts of the sculptor with clay. The results are achieved by a personal or individual touch that in no sense partakes of the fixed and mechanical processes. The hammering of iron under a red heat, when the metal is as tractable as lead, produces a certain irregularity

which gives an added and accidental charm to the finished design. Mr. J. S. Gardner has said: “The salient characteristic of the craft of the blacksmith is that his chief operations are hurried; he may ponder and think over the important works, but once undertaken, he must strike while the iron is hot, the heat and glare in his eyes, amidst showers of sparks, while the telling blows are delivered by assistant hammermen. His results under such conditions cannot fail to be more or less impressionistic, and hence they, perhaps, appeal so strongly to the artistic sense.”*

The nature of iron is such as to suggest two characteristic and distinct methods of treatment. It can be either wrought or it can be cast. With wrought iron, the metal comes to the craftsman’s

*G. P. Bankart, “The Art of the Plasterer,” p. 2.

*J. S. Gardner, “English Ironwork of the 17th and 18th Centuries.”



WROUGHT IRON PORCH AND STAIR RAIL, 272 SOUTH AMERICAN STREET, PHILADELPHIA.

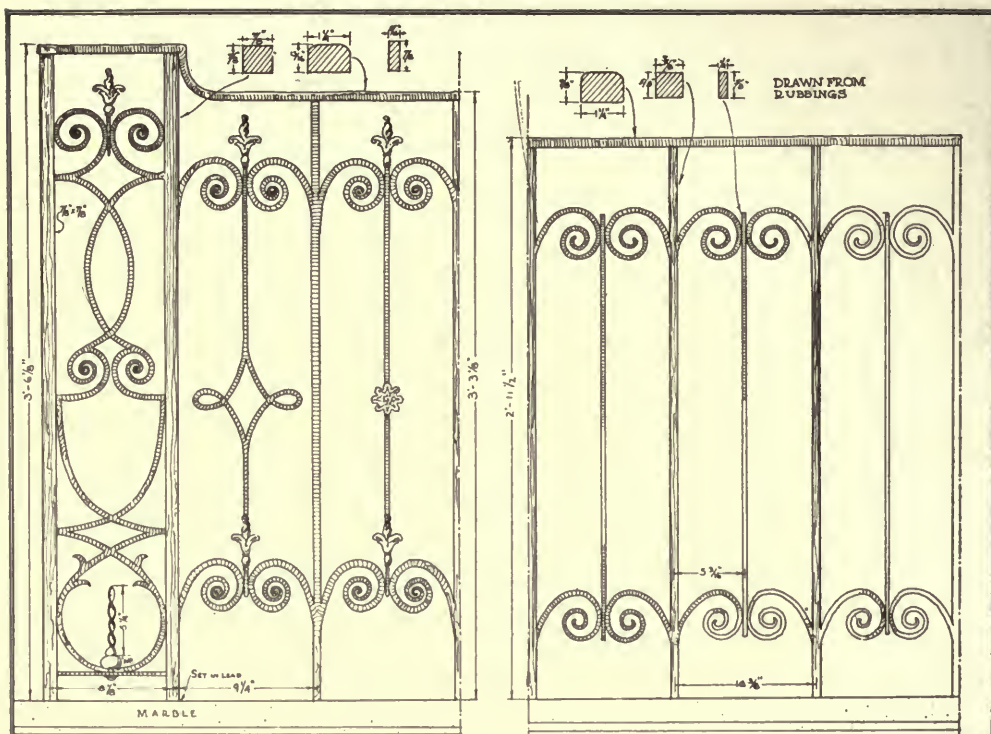
hammer in a partly refined and malleable state, so that it may be drawn or readily hammered out to the properly attenuated and varied shapes. The cast product, on the other hand, is made from a baser metal: it is brittle and coarse in texture and is suited to being poured in a molten condition, into molds of sand. Of the two methods of treating iron, the latter is not so desirable and essentially not so beautiful, for it is further removed from the plastic and deliberate touch of the worker, and it is somewhat objectionable because it is exact and subject to repetition. "Cast iron," said Isaac Ware, "is very serviceable to the builder and a vast expense is saved by using it; in rails and balusters it makes a rich and massive appearance when it has cost very little, and when wrought iron, much less substantial, would cost a vast sum. But, on the other hand, there is a neatness and a finished look in a wrought iron that will never be seen in cast, and it bears accident vastly better."*

It is as an adjunct to urban architec-

*Isaac Ware, "Complete Body of Architecture, 1756," p. 89.

ture that we find the chief and most attractive use of ironwork in Pennsylvania. Philadelphia houses and the dwellings of inland towns were invariably set back a few feet from the line of frontage to give space for the platform and steps of stone. These steps and the landing required the protection of a handrail, which, in conjunction with the extensive use of stone and brick for the house proper, was almost always and logically of iron. Nowhere in America did ironwork receive greater favor. In no other locality did the nature of the current architecture so naturally demand this sturdy material as an accessory in building. The colonists of New England took less kindly to the iron railing and balcony because their dwellings were predominantly of wood. For them the wood rail was both proper and desirable. In the South, where the building traditions of England were most closely followed, there is a highly refined but scattered usage of this material.

Let us examine a few specimens in Philadelphia and elsewhere to acquaint ourselves with some of the characteristics



F.E. BELTZ HOOVER HOUSE
CARLISLE, PA

1206 WALNUT ST., PHILA.



SCALE



DETAIL OF BALCONY RAILING, S. GIRARD WAREHOUSE PHILA.
PENN.
A. L. K.

1796



DETAIL OF PORCH RAIL OF F. E. BELTZHOOVER HOUSE, CARLISLE.

and excellencies of this craft. The hand-rail example at 316 South Third Street in Philadelphia is typical of the simpler form. Such a railing is generally composed of vertical bars of hammered iron, from one-half to one inch square or oblong in section (rarely round), spaced four and one-half to five inches apart and held together by means of the handrail of larger section, into which the vertical palings are "let" as tenons. The alternate vertical bars are sunk into the stone platform and fixed by means of lead or cement. The scroll, as featured here, was popular and consisted of a flat piece of iron, hammered with a slight taper to the shape of a volute or scroll and welded to the heavier vertical bar.

More ambitious railings adopted variations of the fret, lyre shapes, spear heads, loops, circles, ovals, twisted rods, and scrolls. A very limited use was

made of hammered leafage and masks. Quite frequently cast iron rosettes, decorative palmettes, pineapples and balls appear in conjunction with the more directly wrought bars, as at 218 South Ninth Street in Philadelphia.

The graceful stair and landing railing at 272 South American Street in Philadelphia is, perhaps, one of the finest of the hand wrought sort.

The railing of the F. E. Beltzhoover House of Carlisle is sturdier and not so rhythmical in the alterna-



DETAIL—BALCONY RAIL, STEPHEN GIRARD WAREHOUSE, PHILADELPHIA, 1796.

tion of curves and straight lines.

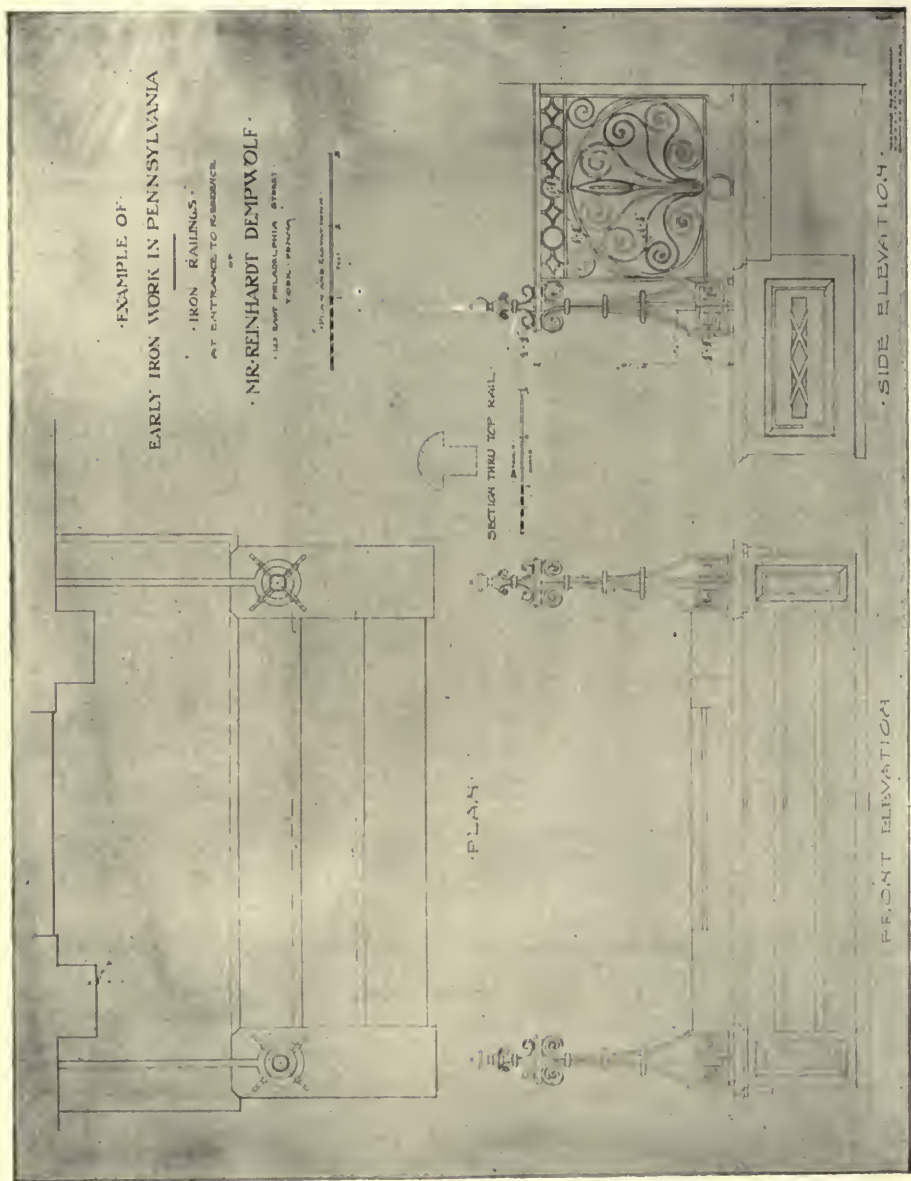
It is evident that there was a common origin for both the railing and for the marble steps, for designs in different places are strikingly similar. It is rather significant that the heavily molded steps are usually unlike the lighter molded features of the houses to which they are attached. The railing and semi-circular steps of the Beltzhoover House in Car-



DETAIL OF NEWEL POST AND RAIL, 218 SOUTH NINTH STREET, PHILADELPHIA, SHOWING COMBINED USE OF WROUGHT AND CAST IRON.



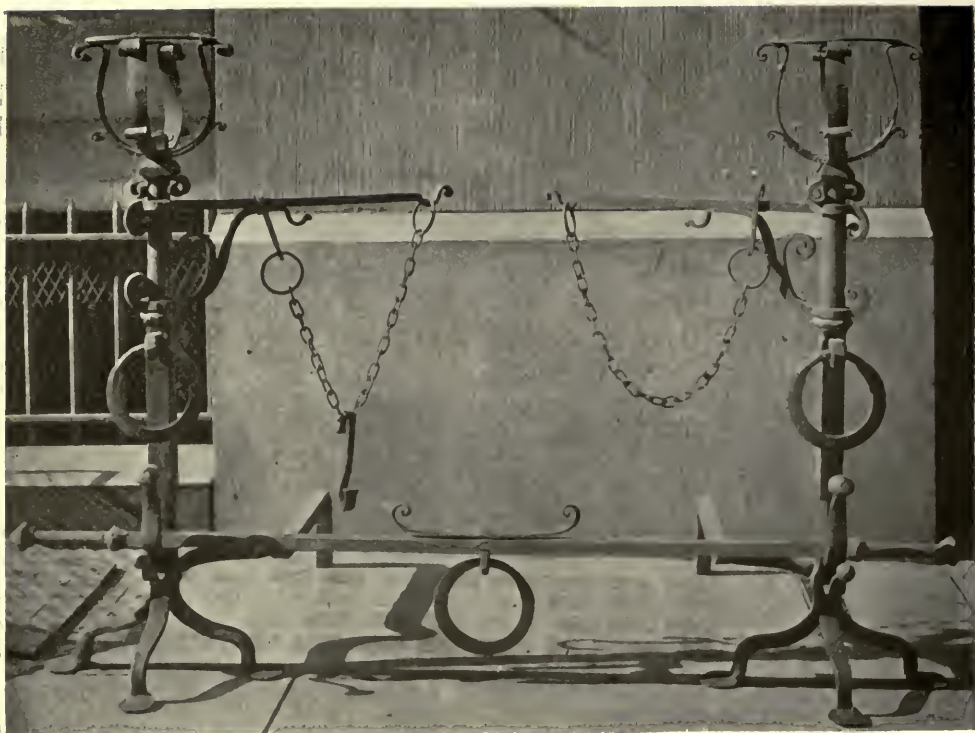
DETAIL OF NEWEL AND RAIL, SEVENTH
AND LOCUST STREETS, PHILADELPHIA.



IRONWORK DETAILS OF ENTRANCE—RESIDENCE OF REINHARDT DEMPWOLF, ESQ., PHILADELPHIA, PA.



PORCH AND STAIR RAIL, 316 SOUTH
THIRD STREET, PHILADELPHIA.



WROUGHT IRON ANDIRONS (WITH POSSET DOGS) MADE BY A WELSH WORKMAN.

disle are clearly a duplication of the Philadelphia specimen at 715 Spruce Street. The railing at 216 South Ninth Street also simulates the rail at the southeast corner of Seventh and Spruce Streets.

In the early days of the city, many of the better houses were provided with balconies. As early as 1685 Robert Turner wrote to William Penn, "We build most houses with balconies." An early resident, describing the reception of Governor Thomas Penn on his public entry from Chester in 1732, said, "When he reached here in the afternoon the windows and balconies were filled with ladies, and the streets with the mob, to see him pass."

Balcony railings differed but little from the treatment accorded the railings of porch platforms. Their use often added much to the external appearances of dwellings, as with "The Highlands," near Whitmarsh.

The warehouse of Stephen Girard, which formerly stood at number twenty,

Delaware Avenue, in Philadelphia, has an iron balcony of exceptional interest. This balcony consisted of several panels treated with a fine elaboration and rugged vigor. In the center appeared the date of the building, 1796, and the initials of S. Girard. The panels at the ends possess a vigorous scroll treatment that surrounds ovals which contain in the one, a representation of a sailing vessel, and in the other, a sheaf of wheat. These were symbolic of the interests of Stephen Girard.

Foot scrapers of iron were made in graceful shapes and vividly recall the days of miry streets and unpaved walks. Many were worthy specimens of true smithing, well suited to their purpose as well as delightful in silhouette.

Andirons, fenders, cranes and other fireplace accessories are frequently treated in a decorative way. The wrought iron fire dogs illustrated in this issue were equipped with an arrangement at the top for holding tankards or mugs and



WISTER HOUSE



320 SOUTH THIRD STREET

EXAMPLES OF FOOT-SCRAPERS IN PHILADELPHIA



THIRD AND SPRUCE STREETS



SOUTH THIRD STREET

EXAMPLES OF FOOT-SCRAPERS IN PHILADELPHIA

were given the special name, "posset dogs".

Door latches, knockers and hinges—all exhibit much fine smithcraft, and an

honesty of execution. They show few marked differences in design and are invariably wrought according to the accepted traditions of metalwork.



DOOR KNOCKER, 324 SOUTH SEVENTH STREET,
PHILADELPHIA.



A DEPARTURE IN HOUSING FINANCE

*The Metropolitan Life to Build Four
Blocks of Apartments in New York City—
Andrew J. Thomas & D. Everett Waid, Associate Architects*

By
JOHN TAYLOR BOYD, JR.

WHEN a great life insurance company decides to build and own 50 apartment houses, giving homes to nearly 2,000 families, and when this housing embodies the highest standards of fine architecture, we have surely encountered a real event in the history of American architecture.

Indeed, the thing is revolutionary. And so in New York was it considered. The extraordinary enthusiasm which the project roused in the daily press—news articles on the front page, special articles and editorials following rapidly in succession for several days—showed that the popular imagination had at last been awakened. Nor did the newspapers dwell only upon the sensational items of the news. They gave full space to the technical details of the plans, and they quoted the Tenement House Commissioner's opinion that the project would "revolutionize city housing".

When architecture crowds out scandal and crime from the front page of metropolitan journals, it has become a "popular" profession. To me, this is one of the weightiest facts among the many in so huge and so many-sided a project. And architects should realize the broader human aspect of the project, because it

marks the beginning of a great change in our architectural progress.

We are not dealing with an accidental event, but with one which has its reasons for being, chief among which is the profound change in economic conditions now taking place in the United States. This generation is viewing the passing of the old-style real estate speculator from control of the building world—the man whose activity has shaped the form of American towns and cities for a hundred years. The evil results of the speculator's work are evident today in the rigid conditions for housing and city-planning, involving untold loss and social discomfort.

The cost of removing these economic and social evils will be enormous, yet they must soon be removed if only for the reason that they cost more to maintain than to abolish. All the unfortunate aspects of this situation should not, however, allow us to forget that, in his day, the speculator had at least some reason for existence. After all, he but fitted in to the scheme of *laissez faire* economics. In the United States he was important economically, because he played a chief part in our pioneer development. When, at the end of the first quarter of the 19th

century, our huge agricultural expansion began and at the same time the industrial revolution swept over the country, it was the real estate speculator who established towns in the wilderness or on open farm land over night and made them grow. In his work, he had the advantage of an inexhaustible supply of cheap lumber, cut from land of little or no value. Cheap lumber made the rapid expansion of the 19th century possible. Whether the heavy price paid for it in civilization was worth while, is not in question here. The point is that the stage of pioneer and industrial economics was a period of "extensive" cultivation in all fields of activity, not only in farming but in industry, business and real estate as well.

This pioneer period is now drawing to a close. The last frontier and the last free land of value disappeared before the end of the 19th century. The character of our industries are now well-defined, as are also our transportation systems and the communities which they serve. Economic pressure is now forcing us to cultivate more and more what we already have rather than to seek what we may exploit. Extensive methods change to intensive methods. In every field of activity Americans have begun to look ahead, to plan carefully, to demand security, to discuss amortization—in a word, to seek solidity.

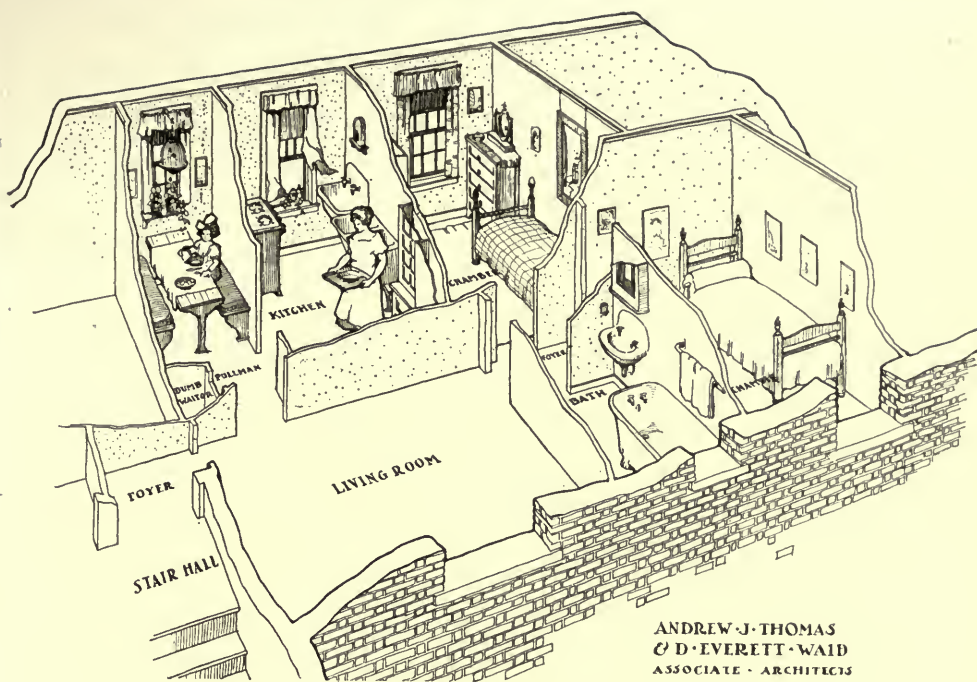
In real estate these economic changes imply permanent construction and improved design, and will soon mean comprehensive community planning, not only to obtain social betterment, but to insure efficiency and security. The beginnings of this new ideal are seen in the rapid spread of zoning since the war. As regards construction, even the reign of the jerry-builder is threatened. Even his mainstay, cheap lumber, is passing. In another generation, when lumber is cultivated as a crop, from higher-priced land, fire-resisting construction will be increasingly popular. This period of change from extensive to intensive cultivation offers unusual opportunity to the architect, who thrives best in a settled, intensive civilization. In the next generation he should make his

position in American life beyond peradventure secure.

The key to the lock which bars out the architect from housing is the power of finance. As in other activities of modern life, the final decision rests with the banker. When expansion was the cry of the country, the banker financed the old style real estate speculator as an incident in the expansion. He lent the speculator money on mortgage, his chief security being the margin above the loan. As a result—and here is the whole point of the matter—the speculator whose interest was in make-shift plans and jerry-construction, barred the architect, through his control of finance, from the construction field. The architect could secure only certain classes of structure of a necessarily permanent type, such as public and institutional and high class residential buildings. As the country became more settled, the architect has slowly progressed down from the top to the commoner forms of buildings. In fact, if one looks back to the remarkable rise in architecture of the past thirty years, he will, I believe, find that it coincides with the passing of pioneer conditions in the various fields in which the architect works. The background of the rise of American architecture is the period of economic change, from extensive to intensive methods.

In view of this economic background, the main fact of interest to the architect is that financial circles are to-day not so hearty in their support of the old-style real estate speculator. The banker is turning to the architect. And, when a great institution like the Metropolitan Life Insurance Company invests millions of dollars in the highest standards of architecture, to create the greatest group of its kind in the United States, and—even more—points to this group as an educational standard, it can only be that the company has sensed the change in economics.

These broader aspects of the situation are for architects the most important factors in this Metropolitan Life Insurance Co.'s housing. The technical principles of Mr. Thomas' designs should be by now



SECTION OF INTERIOR OF TYPICAL APARTMENT—APARTMENT HOUSES FOR THE METROPOLITAN LIFE INSURANCE COMPANY, NEW YORK CITY.

well understood in the profession, and the progress shown in this latest model over his previous ones is all that need be pointed out here.

What this technical progress is may be seen by comparing the Metropolitan plan with the design for the "Homewood" group of the City & Suburban Homes Co. Both groups are true wage-earners' housing, or "tenements" in the popular sense of the term. Three years have proved the value of "Homewood" in every element of good housing—design, finance, management and maintenance; and today this group in Brooklyn stands as one of the soundest achievements in Mr. Thomas' work. The bigness of its architectural conception, the splendid openness of the design, and the remarkable outside light, sunshine and ventilation, are not bettered even in the Metropolitan plan.

The Metropolitan Life project has progressed beyond the "Homewood" standards chiefly in respect to the vaster scale, whereby important economies are created, and the thoroughness with which

the design has been perfected in every detail in order to make the most of quantity production; also in the improved arrangement of the typical apartment. As a result of these superiorities and because of the slightly smaller room sizes, the Metropolitan design reaches a slightly lower rental class than does "Homewood".

More specifically, the Metropolitan housing covers 50 per cent of the lot area, as compared with 44 per cent for "Homewood". The difference means a slight sacrifice of garden space, since the long garden in the centre of the Metropolitan block is not more than 36 feet wide. However, the cross-gardens, formed by the two courts back to back of the U-shaped plan, with vistas running entirely through the block, offset this slight drawback. In my opinion, this narrowing of the rear garden only proves that the width of the typical New York City block—200 feet between building lines—is too small. The U-shaped unit of the apartment house is the right size for making

full use of the four stair cases and could not well be shortened. If a 15-foot longitudinal strip were added in the center of the block, the plan would be improved and the slight added cost almost paid for by the saving made in eliminating an occasional street.

In the Metropolitan plan, the side alleys between the buildings should be noted. They are among the most valuable features of Mr. Thomas' planning. By cutting openings through the building mass at intervals of one hundred feet, into the rear garden, these alleys are made essential to the principle of design which Mr. Thomas calls "block-ventilation". How important this principle is, one may realize if he stands in the rear garden of the group at Jackson Heights, and, on a day without wind, notes the steady current of air, almost a breeze, flowing into the garden from the passageways. But the alleys have other good points. They admit light into the building mass, increase the number of corner rooms in the apartments, and furnish good protection against fire. Also, from the view-point of architecture, they break up the monotonous appearance of the solid street wall into separate buildings, thus giving to the blocks of apartments, the character of homes rather than of institutions. And they facilitate the removal of fire-escapes from the street front.

In respect to the typical apartment plan, the introduction of the tiny dining room alcove—called a "Pullman"—is a new departure. Although some housing experts have questioned its adoption, those most familiar with the living conditions among the people who occupy these buildings, have welcomed it. The housewives themselves, to whom Mr. Thomas and Mr. Waid submitted their plans for criticism at several public meetings, have thoroughly approved the "Pullman," saying that the arrangement not only saves labor by isolating the preparation and eating of food from the living apartments, but makes for more privacy.

Important as any detail of the whole group are the room sizes. They are slightly smaller than in "Homewood," but still, except for the kitchenettes, do not

reach the legal minimum. They have enough space for the usual furniture with room allowed for circulation of people. After all, they reflect the high cost of construction, but are much larger than those offered at the same rentals—including central heating, hot water and electricity and dumbwaiters—in other model tenements. This advantage gives an idea of the economic benefit of the large scale of the project.

Such are the chief points of excellence in the architectural design, together with its differences from Mr. Thomas' previous models. Striking and original as the design is, it is but one of a series made by its author, each marking either an advance in standards or the application of a new principle.

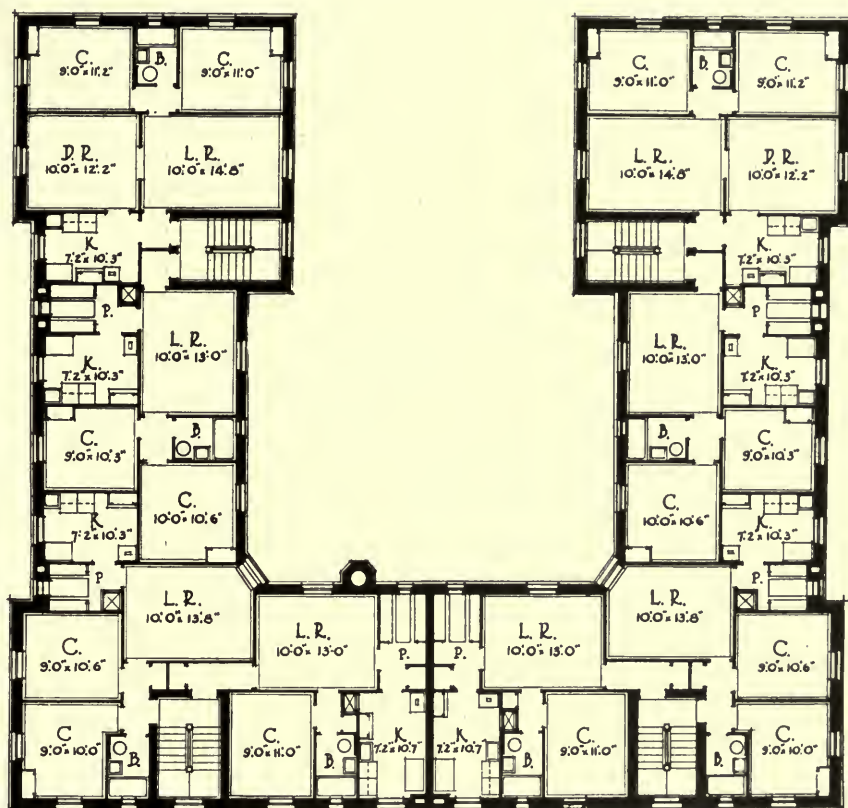
With the architecture of the project in mind we may turn again to the broader aspects of the Metropolitan housing. In addition to the economic background considered above, they cover all the many sides of housing—finance, promotion, production and construction, and management and maintenance. Of these, finance has the newest interest.

First stands the background of local conditions which make such a huge project possible. These are the contributions made in New York City to the perfecting of non-architectural factors of housing, and include the efforts made by architects for many years to incorporate the new principles in design. In this achievement the experience gained in government housing during the war had an important influence.

Progress in the non-architectural side of city housing in New York became evident generations ago, but solid achievement began with the founding of the City & Suburban Homes Co. in 1896. Mr. R. Fulton Cutting, believing that relief of housing conditions was necessary, invited to New York Dr. E. R. L. Gould, a young graduate of Johns Hopkins, to carry out a housing project. At the University, Dr. Gould advanced original ideas of real estate finance in his thesis for the Ph.D., and, after graduation, was sent to Europe by the United States Government to study social and living conditions there.

KEY -
 L. R. - LIVING ROOM
 D. R. - DINING ROOM
 C. - CHAMBER

KEY -
 K. - KITCHEN
 B. - BATH ROOM
 P. - PULLMAN



TYPICAL FLOOR PLAN

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 ARCHTDS.

APARTMENT HOUSES FOR THE METROPOLITAN LIFE INSURANCE COMPANY,
 NEW YORK CITY.

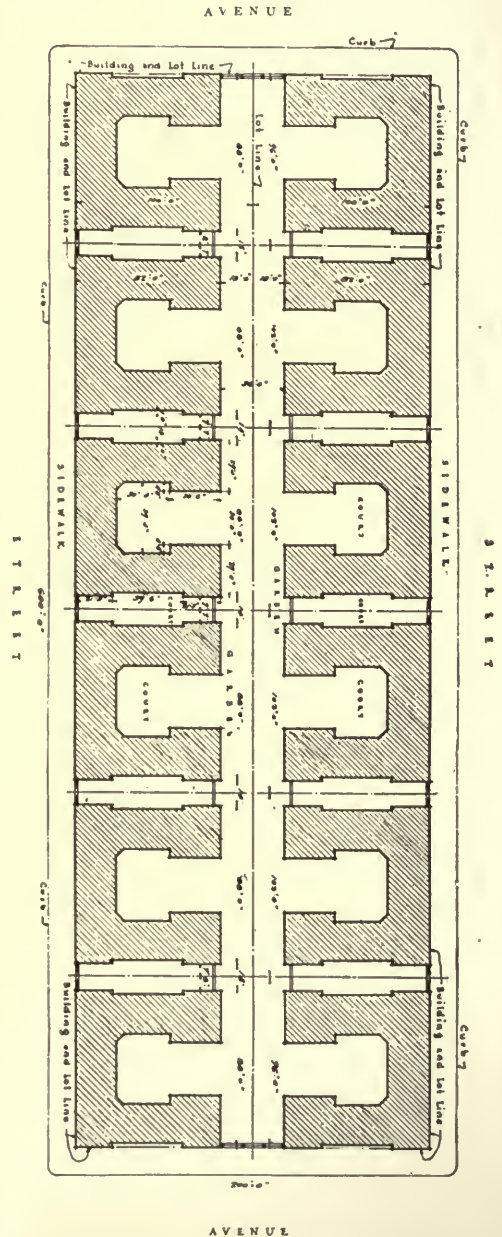
A few public-spirited citizens helped Mr. Cutting and Dr. Gould financially in founding the City & Suburban Homes Co. with a capital of \$1,000,000. Although its founding was philanthropic rather than strictly business-like—the subscribers to the stock thinking rather of the social value of the project than of the gain, dividends being limited to 4 per cent. by the charter)—Mr. Gould immediately placed his company on a strict business basis. He began putting his theories into practice in a small scale, insisting on scientific accounting, with full allowance made for depreciation and amortization, and, most important of all, he worked out practically the principles of maintenance and of management in relation to the design and operation of tenement properties. By organizing all the various factors which enter into housing into a single business concern, he could study relationships and coordinate them and create economies as never before. The striking success of Mr. Gould's administration was proved by his housing the wage-earners under better conditions than before, at market rentals, while continuing to pay dividends on one of the most difficult businesses in real estate.

One of Dr. Gould's finest achievements was the use of life insurance in housing finance. The first 100 houses built by the City & Suburban Homes Co. were sold to wage-earners on a 20-year contract, on a monthly payment basis, supported by a life insurance policy. The last payment on these houses has been made. In a number of cases the policy holder has died, but his family, although deprived of much of their income, retain their homes because of the life insurance feature of the contract. Needless to say, this is a real achievement in carrying out successfully that difficult social policy of homeownership.

Today the City & Suburban Homes Co. has grown until it houses over 10,000 wage-earners, and its capital has increased from \$1,000,000 to \$6,000,000. Mr. Gould died in 1915. To date the culmination of the City & Suburban Homes Company's efforts is the "Homewood" group referred to, the highest

standard of wage-earners' housing existing previous to this Metropolitan plan.

Except for "Homewood," however, the burden of raising housing standards in



BLOCK PLAN OF APARTMENT HOUSES
FOR THE METROPOLITAN LIFE INSURANCE COMPANY, NEW YORK CITY.

New York since the war has been carried mainly by the Queensboro Corporation. This is a private real estate company, and it is significant, I think, that the standards first advanced by Mr. Gould, which seemed so visionary that only philanthropy would or could support them, had, by the time of the war, become so firmly established that a private company found it profitable to put them in practice on a vast scale. The Queensboro Corporation owns a tract of land about half as large as Central Park and houses over 1,000 families in apartments built mostly since the war, 600 of them under the tenant-ownership plan. Tenant-ownership (explained in detail in the June issue of *THE ARCHITECTURAL RECORD*) is the Queensboro's great achievement in housing—to be added to the contribution of the City & Suburban Homes Co.—including the life insurance idea—in finance and management and maintenance and open planning, in the rounding out of New York housing standards in all sides, except one. This side still left undeveloped is appraisal. The Queensboro Corporation's maintenance and management is extraordinary, as is its equally well-known promotion, and it has done more to further open planning than any other agency.

The example set by these two big companies in working out the principles of housing finance, followed occasionally by other interests, has naturally had immense influence in New York. Their standards, together with the prohibitions of the Tenement House Act of 1901 and the Zoning Resolution of 1916, restrain the irresponsible speculator from being quite so injurious as he is in other parts of the country. Defective as these laws are in many respects—they are too complicated, not always well administered, and were drawn to govern an entirely different type of tenement house than Mr. Thomas has created—they are, nevertheless, indispensable, and their valuable support to fine standards should be realized.

Important as any other factor influencing the production of the Metropolitan design is the influence of the war housing of the U. S. Government. In the huge effort made to house the wage-earners in

industrial plants in 1918, architects, almost for the first time, learned the value of large scale housing carried out in comprehensive architectural design, with co-ordination of all the various sides of the problem into a unified whole, and based upon a thorough knowledge of the conditions of the problems, obtained through the coöperation of all the different (and differing) experts—architect, financier, promoter, manager, builder, engineer, manufacturer of materials, and labor—all working together toward a common end.

War organization is necessarily improvised and suffers accordingly. The architects at Washington made mistakes, but as I said at the time, their experience in large scale work and in setting standards put American housing years ahead in progress. This was true of the individual small house and now it is seen to be true of city housing. Unfortunately, the rapid rise of construction costs in 1919 foiled many attempts made by architects in various sections of the country to establish large scale private housing. Mr. Thomas, since his return to private practice after having served as supervising architect for the housing of the U. S. Shipping Board, has worked tirelessly for this object. His efforts were aided by the officers of the City & Suburban Homes Co. and the Queensboro Corporation, many of whom had also taken part in the war housing.

It should be explained that the Metropolitan Life Insurance Company has in its turn made important contributions to housing finance. It had long noted the defects of older types, particularly their heavy depreciation losses. To ensure sounder construction and better planning in the buildings on which it placed loans, the company retained Mr. D. Everett Waid, well known as an architect of the highest professional standing, to pass upon the designs for buildings. Loans are made by the Metropolitan Life Insurance Company subject to Mr. Waid's approval of plans, specifications, materials and methods of construction. Changes are made in the plans, in the interest of efficiency, and durable construction is insisted on in order to reduce maintenance and depreciation loss. Inspections are

made of work under construction. Mr. Waid has done this kind of work for the Metropolitan and other corporations since 1902. Naturally, his standards have been opposed, but without effect. Many a speculative builder who has borrowed from the Metropolitan has come to see that Mr. Waid's principles are sound, and, finding that they are also profitable, has taken a pride in improving his methods. Mr. Waid's experience is a striking illustration of the value of the architect's services in building finance.

Upon this foundation of progress, to which it had itself contributed, the Metropolitan Life Insurance Company reared its huge enterprise. It was able to establish the undertaking on a new scale, which its predecessors had taken years to reach from small beginnings. It is evident that in backing, with its vast resources, these new housing standards of Mr. Waid and Mr. Thomas and others, the Metropolitan Life Insurance Company gives them a prestige before the public which should hasten their adoption. In fact, experienced observers of all types in New York City, including representative journalists, now agree that it is only a question of time before these standards become universal. How long will it take? This is the question for the architect. For, if the big financial interests enforce the highest standards of architecture in housing, architecture will profit extensively.

In furthering this object much depends upon the architect. If, in a given case, the banker says to the architect: "I understand now that city housing means large scale architecture if it is to be produced at low cost, financially sound for a loan and profitable to the investor. I realize that it is not good business to encourage an investor to build an inefficient type of building, even though I protect myself, as I can, by loaning only a small part of the valuation placed on the building, thus guarding against heavy depreciation losses, and though I further cover myself by requiring heavy amortization of the loan. But this policy simply passes the risk along to the investor and to the tenant, and it is not the best kind of banking to finance a business involv-

ing an element of risk. Furthermore, the wage earners who live in these tenements deposit their earnings in my savings bank, or else they buy life insurance from the insurance company across the street in which I am a director. Hence I have every reason to see that the wage earner's money goes into savings and insurance, to their benefit as well as mine, rather than permit it to be sunk in bad design and excessive depreciation. Besides this, the interest of the community and of every business and industry in it—which is my bank's interest—demands that wage earners be economically and cheaply housed. We have here a lot of a given size, in a good location, and a borrower wishes to erect housing on it. He has a plan which looks to me old-style, which he says he arrived at by improving here and there the plan of an older building which he built a few years ago. He thinks highly of his plan and our appraiser approves and I can't show them where it isn't sound. So, unless you can point out to me any weak points in it and can draw me up a better one, I shall give him his mortgage and let him put up his building."

Here the banker has placed the architect at a disadvantage. He has brought up appraisal, the sole factor in housing finance which yet remains to be stabilized. Appraisal is still nearly as crude as it was twenty years ago. The lack of an accurate system of appraisal bars the architect from much commercial work, because he has now no means of measuring accurately the efficiency of his plans. He can figure mathematically the strength of a beam, but not the financial soundness of a plan. When an architect offers a plan in competition with the old-style speculative type, it is almost impossible for him to compute its saving in waste space, or its economies of construction and of maintenance and thus prove in figures how much his plan will earn. He can only claim in a general way that it embodies sound principles of design. But the banker requires that the architect prove his claim in dollars and cents. As a result of the lack of an accurate method of appraisal, the architect can hardly hope

to oust the speculative builder, who is apt to be the better salesman and can usually begot the issue enough to uphold his idea of what is practical in a commercial design.

Therefore, if the architect would enter extensively into large scale housing work, he must develop appraisal. It is a task in itself, and only certain principles of the subject may be pointed out here.

Appraisal involves chiefly the four following factors:

1. Land values and rental values in a given neighborhood.
2. Analysis of the financial efficiency of the architectural design.
3. Financial responsibility of the builder in promotion and management.
4. Soundness of the contractor.

Of these four principles, the first, relating to land and rental values, is fairly well developed in current systems of appraisal. Often it is a matter of judgment and experience on the part of the appraiser, who usually is an old real estate man who can often give a sound guess on local values. Under zoning, however, land and rental values become more stable and in New York are subjected to a more detailed analysis, with tables of rentals and sales records, etc., essential to scientific accounting. Too often, however, appraisal concerns itself but little with future changes in land and rentals and in construction values, although in recent years amortization has come into use to correct errors of this kind.

Appraisal is beginning to take account of the financial integrity of the investor and of his ability in the promotion and operation of housing properties. Only beginning, however, one must admit, because the City & Suburban Homes Company and the Queensboro meet with too little competition in this respect.

The technical soundness of the builder, is also not sufficiently insisted on, and it is chiefly to Mr. Waid's work for the Metropolitan, noted above, that we owe the advance in standards on permanent construction in New York. Maintenance has become a more important factor in building finance since the war, as a result
one hundred forty-one

of high construction costs. Ordinarily, the appraisers rely too much on the local building code for financial security in construction. This reliance is not enough, as Mr. Waid has proved, because, although the building codes prevent the worst operations of the jerry-builder, they cannot well distinguish between refinements in maintenance, in cost of materials and of construction, which are matters of finance and not of law. Besides, a new race of jerry-builders has appeared under the building codes, who though not so flagrant indeed in their methods as the old race, are adroit in skimping construction and baffling inspectors.

However, unsatisfactory as the three factors of land and rental values, experience of the operator, and integrity of the builder, may be, they offer no unusual difficulties. The second factor, financial analysis of plan, is the real problem. This is purely an architect's problem because it is, in essence, design. The architect must have some means of computing the square foot area and volume of waste space in a plan and of determining accurately whether the percentage of this waste is reduced to its lowest terms, much as an engineer computes the stresses in column and beam. Though easy to state, this principle is not so easily applied in practice in a particular plan on a given site. "Waste," or non-rent-paying space, occurs not only in corridors and communication, but in room sizes, closets and lobbies. For example, if it is decided that a 10'x12' room, with a 2'x3' closet is ample for good living conditions and will bring a given rental, then an excess in these sizes must be classed as non-rent-paying space. Unless it brings in a proportional increase in income. If, here and there in his plan, the designer cannot use all the space and throws it into a few of the 10'x12' rooms, making them 10'x16', he has, from a financial standpoint, wasted 33% of the space in those rooms, unless he can rent the enlarged rooms at a higher figure. Designers are apt to think that such waste is unavoidable, yet they would find no excuse for a man who increased the sizes of his floor beams by 33%, which is a far less expensive mis-

take. Five per cent. or even ten per cent. wastage in a building is difficult to detect without rigid analysis. And, when it is detected—here is the real trouble—the architect alone can tell, by changes in the plan, whether the minimum of non-rent-paying space has really been reached. In a large apartment house plan, to eliminate excess space in two or three rooms may require the re-arrangement of every room in the plan.

Such rigorous methods of analysis disclose astonishing differences in the value of designs, discoverable only in this way. If such methods were universal in appraisal, architects would be surprised at the rapid advance in housing standards. Nor would the sole surprise lie in the elimination of the old-style speculator's plans. Architects would see their own standards vastly improved at the same time.

It is therefore the duty of architects to create a scientific system of appraisal. In view of the expert architectural knowledge that this step implies, one need not wonder that the banks have failed to bring their appraisal methods abreast of the progress made in other factors of housing finance. Existing methods of appraisal vary, but the best are said to be inefficient. Mr. Frederick Lee Ackerman has drawn attention to the "cubage" system, whereby the volume of a building is computed and its value appraised as the product of this volume times a unit figure per cu. ft. which is assumed as a reasonable cost for buildings of the same character. As Mr. Ackerman well says, this

system puts a premium on waste space and lost motion in a plan and penalizes progress in design. Under the cubage system, the more excess space in a building, the higher its valuation—though its real value be lower—and the higher the loan obtained upon it. A good plan has no market value if it cannot bring the market loan.

This, then, is the next task for the architect in housing—to develop appraisal, the last unknown factor in building finance. The banker is now ready for this step, as this new housing of the Metropolitan Life Insurance Company proves. Architecture must develop a means of measuring accurately how far other designs come up to the new standards. No real estate man, nor accountant, nor engineer can do this work because, after the simple arithmetical calculation of percentage of waste space in a plan is made, only an architect can analyze the plan and compare it with others, to find out whether the non-rent paying space is at the minimum and, most important of all, to reduce it if it is not. Even this is not the whole of appraisal. The architect can best judge how to embody to the full the big principles of design in the plan, its value in openness, sunlight and cross-ventilation, and can best determine the exact percentage of area of the plot which can most profitably be covered.

Viewed in this light, appraisal is a financial analysis of the volume of a building. It becomes design and is peculiarly the province of the architect.



MOSAIC DESIGNS *by* FRANK BRANGWYN ARA IN SAINT AIDAN'S CHURCH AT LEEDS —

By
ARTHUR FINCH

UNDOUBTEDLY the one outstanding contribution that the American painter has made to the art of his country has been in the sphere of mural decoration. In the enrichment of American public buildings names such as Bancroft, Leftwich Dodge, Mathews, John Sargent, Edward Simmons and Robert Reid signify more than the mere possession of a masterly technique. They stand rather for a thorough understanding of the part that the decorative artist must play in relation to the architect's design and to the building he is to enrich. Conversely, the American architect, as he expresses himself collectively through such an expressive body as the Architectural League, and individually in architectural design as in some of the work of such men as Louis Mullgardt, Henry Bacon, Bernard Maybeck, William Mead—to name no others, has certainly aided the successful accomplishment of the mural painter's work whatever the medium he has employed—oil, tempera or fresco.

For the preliminary design is required a masterly decorative painter, having a knowledge both of the possibilities and

the limitations of the material, its relation to the lighting and the position it is to occupy in the building in relation to the architecture. Then, for the execution, highly accomplished craftsmen are necessary. Added to these difficulties are the limitations of the tesserae themselves, which must express through the blending and massing of the colors, jointing, and formulation of the finished mosaic, an approximately perfect interior decoration on the requisite large scale; a result more easily accomplished in any other branch of mural painting, and most easily in tempera.

Admittedly, then, the difficulties to be overcome for mosaic decoration are many. At the same time it possesses qualities that counterbalance the disadvantages. Mosaic becomes indissolubly part of the structure itself, a permanent decorative unity with the architecture; this outweighs the advantage of finish in mural decoration possessed by tempera and fresco. With this fine structural decorative quality, that the Byzantine mosaicists used so advantageously, there is combined a durability that no other media of architectural decoration possess in so high a

degree. But, more than these, the two general qualities it has—(1) imperviousness to the action of smoke; (2) diffusion of an atmosphere of repose and coolness in combination with rich tonal quality and luminosity—are of no little importance in determining its use both for ecclesiastical and secular buildings in a country like the United States. Where there is a smoke-laden atmosphere, as in the steel-smelting districts, its utility cannot be gainsaid; for no other material is so easily divested of surface films of dirt. The second quality has no mean advantages under climatic conditions such as are present throughout important parts of the Union. In the Northeast, for example, they are akin to that of Northern Italy, possessing the remarkable early mosaic of St. Apollinare Nuovo and others in Ravenna; on the Pacific slope and to the Southeast conditions similar to Cairo and Algiers prevail, such as also obtain in the vicinity of Santa Sophia, Constantinople.

When, however, the conditions necessary for an imposing mosaic decoration as set out above are taken into consideration, it is not surprising that in England tesserae have been set aside during the past three or four decades in favor of other media for mural painting; though at the time of the Gothic revival it was used with some success by Dr. Salviati, of Venice, in the decoration of the Wolsey Chapel, Windsor, and for the figure designs in the arcades of the Victoria and Albert Museum, London, and by a few others more recently in the spandrels of St. Paul's Cathedral, Westminster Abbey, and some secular buildings of note. Such efforts have not, however, been carried out on the requisite large scale wall surfaces to do justice to the qualities of mosaic that have characterized modern examples in Italy and Russia.

The conditions necessary for large scale treatment and architectural fitness were present for the execution of the mosaic designs prepared by Frank Brangwyn, forming the subject of this article, and make the work here illustrated of considerable importance to architects and decorative artists both of the old world and of

the new. It was carried out in St. Aidan's Church, Leeds, through the generosity of Mr. R. H. Kitson, whose father was well known in the city. The building is typical of the early basilica churches, of which there are still remains extant in England indicative of the Roman occupation, similar to those to be seen all over Central Italy. The plan embodies many of the characteristic features of such early basilican churches as St. Agnes and St. Maria Maggiore, at Toscanella, northeast of Rome, and of the German master builders of the Rhenish school, whose Romanesque style incorporated the fine features of the basilica with its clerestory, with direct lighting of the nave. Thus there is a nave with aisle on either side, choir at East End with apse, in cruciform style; the nave colonnades having rounded shafts carrying Corinthian capitals from which spring the round arches carrying the clerestory wall.

Coming now to the mural decorations, it will be perceived that the interior architecture of St. Aidan's Church, with its dark stone masses and spacious interior, lighted by the clerestory windows, lent itself opportunely to color incrustation. Particularly will this be understood, when regard is paid to the damaging effect the smoke and grime of the woollen manufacturing center of Leeds would have on a less permanent material than mosaic. And it was the latter fact, borne in upon Frank Brangwyn after he had visited the church and vicinity, that decided him in favor of mosaic rather than the tempera for which he had himself planned the principal design.

The scheme itself was designed to be carried out in two distinct, yet associative parts, within the choir. On the apsidal wall is the main design, covering an area of 1,000 square feet, from which centre, so to say, springs the semi-dome, treated in a low-toned gold key, somewhat suggestive of the backgrounds of the Byzantine mosaicists. With a perspicacity that has never failed him in the selection of a suitable theme for all his great decorative paintings, Frank Brangwyn chose to utilize the story of the life of St. Aidan, the famous Abbot of



DETAIL OF MOSAIC: ST. AIDAN PREACHING—ST. AIDAN'S CHURCH, LEEDS.

Designed by Frank Brangwyn.

Lindisfarne, or Holy Island, in Northumbria, who with Oswald, king thereof, undoubtedly laid the foundations of that great period of Saxon culture and artistic achievement after his arrival in England *circa* 640 A. D. The story has it that he came from the monastery of Iona, in Scotland, founded by St. Columba, to Holy Island, off the coast of Northumberland, and with a band of monks went forth therefrom through the wilds of the northern region—now Northumberland, Durham and Yorkshire—teaching Christianity to the primitive inhabitants. Brangwyn's design takes a tripartite formation. There is "The Landing of St. Aidan" and "Welcome to the Poor," his "Preaching," and his "Death". Below, the apse is treated with small tesserae, filling an area of 500 sq. feet. Then beyond the altar

one hundred forty-five

rails is the massive stone chancel screen, filled with panels of monks and acolytes in attitudes of worship, covering an area of 300 sq. feet and forming the subsidiary and complementary design.

Consider first the cartoons as a whole: the general structure of the designs and their relationship to the interior architecture. No mural decorator could have made a more difficult choice of subject matter. It involves the use of a large number of human figures, always difficult of successful treatment, especially for faces in tesserae, by reason of the complexities of jointing. But Brangwyn had three outstanding qualities that helped towards a favorable result; the absence of which, despite their general fine qualities of drawing and modeling, have spoiled so much of the work of French and Italian



ST. AIDAN PREACHING — ORIGINAL
DESIGN FOR MOSAIC — ST. AIDAN'S
CHURCH, LEEDS, BY FRANK BRANGWYN.



THE LANDING OF ST. AIDAN IN NORTHUMBRIA
—ORIGINAL DESIGN FOR MOSAIC, ST. AIDAN'S
CHURCH, LEEDS, BY FRANK BRANGWYN.



ST. AIDAN FEEDING THE POOR—
ORIGINAL DESIGN FOR MOSAIC,
ST. AIDAN'S CHURCH, LEEDS,
BY FRANK BRANGWYN.



DETAIL OF MOSAIC: DEATH OF ST. AIDAN—ST. AIDAN'S CHURCH, LEEDS.
Designed by Frank Brangwyn.

mosaicists in recent times. He is a designer by instinct—if the expression may be allowed; a colorist who is able to take a large view of structural design; and an artist imbued with the romance of the subject matter rather than its realistic interpretation. These qualities, combined with powerful line drawing, have certainly enabled Frank Brangwyn to give repose to the composition—that essential decorative quality of which he gave fine promise long since in his little-known painting, "The Bathers"—and a general affinity with the surrounding architecture.

By some readers who have examined carefully the principal design, however, it might be questioned whether it would not have been improved architectonically if the masses of trees had been carried up to the roof where it meets the sky (or, had

there been pillars where the spindly tree trunks and cropped foliage show), so as to give a better effect of supporting the semi-dome than appears to have been obtained by the representation of sky as in the decoration. At the same time, I venture to say that, with the exception of the late Puvis de Chavannes, few modern mural decorators have shown, as Brangwyn has in the principal mosaic, the mastery of decorative principles that has enabled him to give his work its architectonic character. This quality he has obtained by care exercised in the right distribution of the various parts of the pattern. Added to this is the clever utilization of the difficult artifice of simplicity in massing of figure groups with their evenly-balanced limbs and perpendicular draperies, the method so ably em-



VIEW OF APSE WITH MOSAIC IN
POSITION—ST. AIDAN'S CHURCH, LEEDS.
DESIGNED BY FRANK BRANGWYN.

ployed by the early Byzantine mosaicists; and the disposition behind them of vertical tree masses strongly outlined against the purplish-blue of shadows which loom up from the horizon across the divided water.

When one proceeds to a closer examination of the cartoons and the completed mosaics, one cannot help being struck by the fact that while the artist has properly sensed the necessity of giving to both compositions a certain formality of style, the figures in each of the interdependent groups are full of animation. This admirable quality is also seen in the faces of the undraped heads of monks in the processional treatment of the chancel screen groups, contrasting well with the general severity of the design, reminiscent in some respects of the Ravenna mosaics.

The individual figure types will be familiar to those who saw Brangwyn's tempera paintings of "The Four Elements," in the Court of Abundance, at the San Francisco Exposition of 1916. They show no slavish imitation either of the fine qualities or weaknesses of the past or the mannerisms of the present. In the formation of the groups, rich coloring and handling thereof, dignity of manner and solidity of forms and background masses, he evinces an indebtedness to the great master designers of the past. Yet his work is individual to a degree, if modern in feeling. It differs markedly in form from the stiff, lifeless demeanor characterizing 11th century Italian mosaics, as also from the carefully modeled, refined types, full of lively action, represented by Rizzi's mosaic at the entrance to St. Mark's Cathedral, and of the more modern work of Italian mosaic designers. Brangwyn's types are curiously crude, typifying animalism. His manner is expressed vividly in the brutish strength of the first two figures, female and male, standing athwart the slender tree trunks, with the bulldog at their feet, and in the breadth of draperies in the kneeling and sitting figures in the foreground, seen on extreme left of the decoration in the rendering of "St. Aidan Welcoming the Poor". Unlike many modern imitators, Brangwyn is true to his

own art ideal. He knows the important part that contrasting yet associative figure types have in the balancing of the composition, apart from the contributory effects of color and draperies. Accordingly, in the rendering of the last incident, "The Death of St. Aidan," he has, by devices of handling, portrayed with no little insight and power the complementary characteristics of awe and dumb stolidity associated with the attitude of primitive folk in face of an untoward happening. Interposed, as it were, on the deep concern and sorrowful understanding of the purple-flecked and grey-robed monks, grouped around and ministering to the dying St. Aidan in a gown of purplish-white, are the two semi-nude humans (with the blue robed girlish figure immediately behind them), whose brick-red draperies partially covering their muscular limbs contrast so strongly and significantly with the sombre dress of the monks. The one is markedly stolid; the other listening intently and wonderingly to the last ministrations. And, fittingly closing the whole composition, as well as balancing the grey, purple-tinted white and deep purple draperies and schematization of the opening episode, is the cleverly posed group of listening, yet stolid, peasant women types, with their alternate red, purple-flecked, white and orange headdress contrasted by the black cloaks against the purple-greys and white of under garments, appropriately uncovered in the end figure to light up the olive-grey cloaked, seated monk.

Employing a long-distance perspective, the central design with its multitude of figures, falls correctly into position as seen from down the aisle; the figures have the illusion of equality in size, an advantage when considered in relation to the nearer figures of the chancel screen groups. The designer has employed many artistic devices for the effective grouping and emphasizing of the central figures in each. In the strongly outlined and powerfully drawn introductory episode of "St. Aidan Landing", with its massing of purple-tinted grey-brown sail and ship, the whitish robe of the monk, with the crouching figure beside him,



VIEW OF COMPLETE MOSAIC—ST. AIDAN'S CHURCH,
LEEDS. DESIGNED BY FRANK BRANGWYN.

stands out prominently against them and the figures in white hauling in the vessel. Then in the representation of "St. Aidan Preaching" he utilizes a long scarf, and a staff held by the supporting figure of a monk, as a foil to outline the form, so making St. Aidan the center of vision in the composition. He also adds to the interest of the spectator by grouping around him men, women and children, in their bright spotted red, green, sky blue, deep purple and bluish robes, and variously colored hair and coverings, representing in their facial expressions and postures (note the excellent arrangement of the group immediately to the right of St. Aidan) their interest in the preaching of the Abbot.

The cartoons, as also the executed mosaic, reveal a wealth of color detail, though the broad manner employed of contrasting neutrals with the primary and secondary colors avoids those subtleties sometimes employed with resulting disadvantages to the mosaic design as a whole. Certainly the colors are sumptuous: that is a characteristic of Brangwyn's work in all mediums: and how greatly the reader will miss this quality in the illustrations here! His background masses of color are particularly good, giving harmony to the design. There are the before-mentioned purple-blues of the expansive sky, breaking up into whites, greens, greys and other tints and hues. These combine with the deep blue of the distant background against which are the small tree masses in greys outlined thereon leading to the lighter-toned mass of greenish-blue water; the soft greensward of the foreground on which are disposed the contrasting tones of tulips, geese, etc., reminiscent of the incidentals employed by Benozzo Gozzoli in many of his mural decorations; together with the finely disposed vertical tree masses in greys and browns with black and orange tinted foliage, with the blue and purplish tints of the shadow background cast from the trees and horizon beyond. There are no complicated lighting effects in the mosaic. Frank Brangwyn employs the simple aids of contrasting colors in draperies against backgrounds and dexterous handling in

the treatment of folds and important incidentals, such as headdresses, etc. These are assisted by his adaptation of simple technical media that his experience as an etcher has, no doubt, led him to utilize advantageously in relieving effects of strong lighting.

The execution of the design was entrusted to Mr. Jesse Rust, member of a well-known mosaic firm in Battersea, London, whose father was responsible for the figures that adorn the principal hall in the Victoria and Albert Museum. Having the full-sized detail of the cartoons before them on the reverse side, the mosaic being downwards, the cubes are fastened by skilled workers by means of paste to sheets of brown paper, whereon the cartoon has been traced. This done, it is ready for actual fixing by means of cement on the wall surface, the brown paper then being removed from the face of the mosaic. The result of this method is that, whilst it involves, particularly for figure treatments, as in the present instance, great skill and long experience in working with the material, it enables designs to be executed without recourse to the builders' scaffolding, and can accordingly be sent any distance. In carrying out so difficult a task much credit is due to Mr. Rust and his staff. They have selected carefully the tesserae; wisely arranged the mosaic to follow leading lines of important parts of the composition, the long perpendicular lines of draperies, and particularly the trees giving the effect of height to the design, and the horizontal lines for backgrounds aiding the effect of distance in the composition. And, withal, the necessary impression of gradation in the treatment of the draperies and flesh tones is given, the latter being enameled to bring out the effects of color. Comparison between the cartoons and the executed mosaic, of course, reveals the difficulties of jointing; though there is clear evidence of attention to the well-tried methods of the mosaicists of the past in the arrangement of the mosaic of the same colors as the ground to follow the leading contours outlined on the background, giving the well-defined effects that characterize stained-glass execution.

The LAW OF SQUARES

— A Study of Proportion —



BY ERNST JONSON

WHEN one compares the proportions of well designed architectural or decorative motives, it appears that a proportion which is right for a large motive is not right for a similar motive of smaller size. A low building requires a relatively deeper cornice than a tall building. The border of a large rug is relatively narrower than that of a small one. Is there a law which governs these variations of proportion?

Before attempting to answer this question it must be realized that the size which is most significant with regard to proportion is not absolute size, as measured in feet and inches, but the size measured on a proportional scale. In architecture, the scale of modules or half column diameters is a proportional scale. That is to say, for the purpose of comparing the proportions of different structures their magnitudes must be measured in modules, not in feet.

The most characteristic dimensions of the members of an architectural composition undoubtedly are the depths of cornices and mouldings, especially the depth of the main cornice. Unfortunately nearly all the monuments of Classical Antiquity that remain to us are one-story structures. There exists today but one Roman façade of several stories which may be regarded as typical and which still carries its main cornice—the Colosseum in Rome.

This façade is 110 modules in height, and the depth of its cornice is 3.8 modules, the depth being taken to the lower edge of the cymatium of the architrave. That is to say, the height of the façade of the Colosseum is about four times that of the typical Corinthian temple portico, but the depth of the cornice of the Colosseum is only twice that of a Corinthian cornice. In other words, the depths of

the cornices of these structures are proportional to the square roots of the heights of the façades.

Let us test this formula on some of the typical examples of Roman and Renaissance architecture.

The following figures represent the depths of main cornices given in terms of the square root of the height of the façade in modules. That is to say, when the square root of the height of the façade is multiplied by one of the following coefficients, the product is the depth of the cornice.

Arch of Titus, Rome.....	0.38
Arch of Constantine, Rome.....	0.36
Arch of Septimus, Rome.....	0.39
Pantheon, portico, Rome.....	0.37
Nerva's Forum, Rome.....	0.32
Temple of Jupiter Stator, Rome.....	0.40
Temple of Antoninus, Rome....	0.31
Temple of Fortuna, Rome.....	0.35
Nero's Frontispiece, Rome.....	0.38
Average of Roman one story structures	0.36
Colosseum, Rome	0.36
Cancellaria, Rome	0.36
Giraud Palace, Rome	0.37
St. Mark's Library, Venice	0.37
Loggia, Brescia	0.34
Bevilacqua Palace, Verona	0.35
Average of buildings of several stories	0.36

A minor cornice or moulding evidently is most directly related to the portion of the façade which it crowns. Thus the attic cornice is proportioned with reference to the height of the attic, the string course with reference to the height of the story, and the pedestal cap with reference to the height of the pedestal.

Following are the depth coefficients for secondary cornices and mouldings of

one hundred fifty-four

some of the typical examples of Roman and classical Renaissance work.

ATTIC CORNICES	Coefficient
Arch of Constantine, Rome	0.37
Arch of Septimus, Rome.....	0.31
Nerva's Forum, Rome.....	0.33
Average	0.34
STRING COURSES	
Colosseum, Rome, 3rd Story	0.35
“ “ 2nd Story	0.31
“ “ 1st Story	0.34
Theatre of Marcellus, Rome....	0.32
Cancellaria, Rome, 2nd Story...	0.32
Giraud Palace, Rome, 2nd Story.	0.33
Giraud Palace, Rome, 1st story..	0.29
Average	0.32
PEDESTAL AND PODIUM CAPS	
Arch of Titus, Rome	0.34
Arch of Constantine, Rome.....	0.34
Temple of Fortuna, Rome.....	0.27
Colosseum, Rome, 3rd Story	0.32
“ “ 2nd Story	0.29
Theatre of Marcellus, Rome, 2nd Story	0.37
Cancellaria Rome, 3rd Story	0.29
“ “ 2nd Story	0.31
“ “ 1st Story	0.35
Giraud Palace, Rome, 3rd Story..	0.31
“ “ 2nd Story..	0.30
“ “ 1st Story..	0.28
Average	0.31
Average of all	0.32

The foregoing comparisons indicate that the formula which was derived from the relation of the depth of the cornice of the Colosseum to that of the temple cornices may be regarded as a reasonably accurate expression of a law of proportion—a law which may be stated in this way: Corresponding features of motives of different sizes are related to one another as the square roots of the sizes of the motives. This law, then, may be called the Law of Squares.

Owing to the lack of uniformity in works of art it is impossible to directly establish this law with anything like a satisfactory degree of probability. An

adequate working confidence in the Law of Squares can be acquired only through its application to one's own work, or in the critical analysis of existing work. When used as a norm of criticism it often indicates faults of proportion which otherwise might have remained unnoticed. And when used as an aid to design it saves time, and prevents errors of proportion as well as errors of scale.

In applying the Law of Squares to architectural compositions, it is necessary first to determine the size of the module. When an order is introduced into the composition as a principal feature the module is given, but when no such order is used, the determination of the proportional scale becomes a matter of judgment guided by precedent. Analyses of existing façades show that the proportional scale increases when there are no principal orders. And as the masonry becomes more prominent the scale increases correspondingly. Thus the scale of a heavily rusticated façade may be three or four times as large as that of a façade with orders, while a façade of the type of the Farnese Palace in Rome is about twice that of an order façade.

The proportional scale of an existing façade without a principal order may be determined from the depth of the cornice, for this depth in modules may be assumed to be 0.36 of the square root of the height of the façade in modules. Hence the size of the module in feet is obtained by taking the square of the depth of the cornice in feet and then dividing this figure by 0.13 of the height of the façade in feet. If the dimensions are given in meters the operation is precisely the same, the result obtained being expressed in meters.

Calculations involving square roots consume much time unless a table of square roots is used. Before trying out the Law of Squares such a table should be provided, and it should be a table running up to 10,000. A shorter table of squares may be used by reversing its reading; that is, using the squares as numbers and the numbers as square roots.

The CHURCH of SAINT SOPHIA

By

Charles H. Moore

THOUGH well known by name, the architectural character of the Church of Saint Sophia of Constantinople, and its importance among the monuments that remain of the world's artistic patrimony, are too little known. Saint Sophia is not only the grandest and the most magnificent architectural product of the early middle ages in Europe, but is the only one in which the Byzantine style, whether as to structure or embellishment, was ever fully embodied in its integrity and completeness. As the Parthenon stands in relation to other Greek building, and as Amiens to other French Gothic art, so stands Saint Sophia among the works of the Byzantine Greeks. In this noble fabric, the Greek genius after the long period of stagnation that followed the decline of its ancient artistic culture, found renewed expression under conditions that called for a complete recasting of ancient forms; and these conditions were met with consummate inventive and executive skill, controlled by the finest powers of design, so that we have in it an entirely distinctive style of architecture of great majesty and beauty. Happily, the building remains substantially intact after the lapse of more than thirteen centuries, save in a few parts where some distortions and ruptures have developed.

The building is of noble simplicity and entirely rational design, and its structural system invites close attention. It is vaulted throughout, and in its vaulting the distinctive character of the monument primarily resides. The vaults are mainly of two kinds, both of which differ fundamentally in principle and resulting conformation from previous vaulting—which was on Roman lines. Its general character may be described as follows:—

In plan it has the form of the Greek cross enclosed within a rectangle into which the north and south arms are

opened, so as to give an aisle on either side. The eastern and western arms are apsidal, with two apsidal alcoves opening out of each, while a smaller apse on the main axis breaks the eastern wall of the enclosing rectangle.

In elevation the square of the crossing is covered by an almost hemispherical dome, of a little more than a hundred feet in diameter, resting on pendentives. The pendentive is the distinctive feature of Byzantine dome construction—the dome and the pendentive together forming a compound vault which may be described as a hemisphere with a diameter equal to that of the square of the crossing, resting on four segments of a larger hemisphere whose diameter is equal to the diagonal of the square. These segments are the pendentives, and are what remain of the larger hemisphere after it has been cut by a horizontal plane at the base of the dome, and by four vertical planes coinciding with the sides of the square.

The supports consist of four great piers, one on each corner of the square, connected by arches carrying walls that reach up to their crowns—the four walls together forming the reëntrant angles within which the pendentives are built.

Externally, the dome is fortified against thrust by a ring of abutments, with narrow intervals, their outer faces inclining inward as they rise, so that together they form a short frustum of a cone. There are forty intervals, and the dome is pierced with corresponding openings which give a circle of light. The buttresses are connected by arches, making a continuous ring of masonry over the haunch of the dome. It should be noticed that by this abutment a large part of the dome is hidden from view; but this detracts nothing from the appearance of the structure. It rather improves the

outline, I think, and it may be said in general that whatever is functional in construction only adds beauty to the fabric if it be properly shaped and adjusted.

Internally, the dome surface is broken by slightly salient ribs rising against the buttresses and decreasing in salience as they ascend. By this means the vault—which is remarkably thin for its magnitude—is materially strengthened.

This distinctively Byzantine scheme of construction has the advantage over the Roman scheme—in which the dome rests on a circular drum—of giving unlimited freedom in planning; for the area covered by the vault may be open on each of its four sides, so as to communicate with adjoining parts, which may be multiplied indefinitely. Here in Saint Sophia it opens east and west into the great apses, while north and south it communicates with the aisles through shafted arcades. These arcades are great features of the interior, and are in two tiers on each side—the upper one reaching to the springing of the pendentive arches, while the tympanum space is filled with a wall pierced with two tiers of lights.

The half domes that cover the great apses coincide with the pendentive arches, and thus abut at their crowns on the base of the dome. They require no pendentives, since the supports of each stand on a curve corresponding with the vault.

The aisles are in two stories answering to the arcades, and their vaulting is in rectangular compartments of varying proportions. Of these, the larger ones on the ground story have groined vaults of a new form that had far-reaching influence on later vault construction in Northwestern Europe, and calls for particular notice. It can be best described by comparing it with the Roman groined vault. It is well known that the Roman groined vault has, normally, the form of two half cylinders interpenetrating at right angles. The groins of this vault are therefore necessarily elliptical in elevation since they are the curves of oblique sections of cylindrical surfaces. A vault of this form can be adjusted to

a square area only. The groined vaults of Saint Sophia are fundamentally different in principle and in conformation; and this difference arises from the fact that it is not a result of interpenetrating surfaces, but a consequence of the curve of the groin arch, which is formed independently. That is to say, instead of being a semi-ellipse given by the oblique section of a half cylinder, it is made, like the arches on the sides of the compartment, semi-circular or segmental. It follows that the groin arches, being on the diagonals of the compartment, and thus having longer spans than the arches on the sides, reach a higher level, which makes the vault domical, i. e., higher at the center than elsewhere. Thus in either transverse or longitudinal section the crown of the vault is arched, instead of being in a straight line like the Roman vault. The Byzantine groined vault has no regular surface, but is variously hollowed according to the proportions of the plan and the consequent differences in the spans of the several arches to which they are shaped. It will be seen that this form of vault gives unlimited freedom in construction, since it can be adjusted to a rectangle of any proportions as readily as to a square.

In the Byzantine groined vault no ribs occur, save for a wide arch of rectangular section, and deeply embedded, which separates one compartment of vaulting from another. This arch, or rib, is but slightly salient at the springing, but increases in projection as it rises, yet without becoming very pronounced even at the crown. It is, however, a step in the direction of that systematic ribbed construction which distinguishes the progressive type of Romanesque architecture of Western Europe, out of which the French Gothic style of the twelfth century was evolved.

The lesser structural features of Saint Sophia are as remarkable in their way as the vaulting, for in the shafted arcades we have, in fact, a new order of support, which is a rational evolution out of the orders of Greek antiquity adapted to the needs of arched construction. The Roman architects, in springing arches from columns, made no changes in the forms of

the members of which the columns were composed. That a column devised to carry the entablature of a trabeate system, was not a proper support for an arched system, they did not perceive. Without entering into a discussion of all the conditions which determine the form of a column suitable for the support of an arch, we may notice a few points in which the columnar supports of Saint Sophia are shaped for their function.

The colossal marble shafts of the great arcades on the north and south sides of the nave—which are magnificent monoliths gathered from more ancient buildings—have no pronounced entasis, and do not taper very perceptibly, neither of these features being suitable in arched building. Whether they were found in this form, or were reworked by the Byzantine builders, we have, I believe, no means of knowing; but the fact that they have this form should be noted. They have, however, the mouldings at the bases and the neckings, which are features of the columns of classical antiquity that are unsuitable for the new conditions, and were thrown off in Northwestern Europe as arched building developed. But the bases on which these columns rest, though retaining much of the character of ancient models, more particularly as to their profiling, are a good deal transformed to meet the new exigencies. They are more spreading than those of the ancient orders, and are raised on large square plinths. But the capitals show the most marked change and most fully reflect the genius of the Byzantine craftsmen. The new function of the capital was here comprehended. This function is to prepare the relatively small round shaft to carry a bulky square load under conditions that subject it to chances of lateral disturbance from the active principle latent in the arch. In developing its form with these conditions in mind, the Greek workmen made it a curious, yet an entirely natural fusion of the three ancient Greek types, the Doric, the Ionic, and the Corinthian.* The Doric element appears in the convex outline of

the bell, and in the thick square abacus, the Ionic element in the bolsters, and the Corinthian in the proportionate height of the whole member. For such a structural system, this form leaves little to be desired, and, like the groined vault just considered, it had far-reaching influence on the progressive types of architecture in the West, and particularly in the Ile de France in the twelfth century—as may be seen strikingly in the apses of Senlis and Noyon.

These capitals are enriched with elaborate carving in low relief, which is in fact little more than surface chasing. It is an appropriate ornament for a massive system like the Byzantine, and is carried out on the arch soffits, on the faces of the archivolts, and on the spandrels. But except as surface chasing it has little merit. It is a monotonous sort of arabesque, and although on the capitals there is some suggestion of leafage, nothing of the vital beauty of natural plant life, comparable to that found in ancient Greek foliation, appears. It remained for the ornamental carvers of the French Gothic school to produce architectural foliation in which the beauty of nature is expressed through the natural conventions of stonework.

Great splendor is given to the interior of Saint Sophia by incrustation of the walls and piers with slabs of colored marbles, by illumination of the vault surfaces with mosaics, and by the many shafts, large and small, of richest marbles, including porphyry and verd-antique. It is a monumental sort of color decoration, of enduring magnificence. But it is greatly disfigured by the introduction of iron railings on the ledges of the arcades and by Turkish furniture and banners. To what extent the mosaic enrichments have suffered loss or injury through the ages I do not know.

I have alluded to the fact that some distortions and ruptures have arisen in a few parts of the structure. These may be of long standing. There were disasters even before the completion of the edifice, when the great piers are said to have partially yielded under the charge of the pendentive arches. The contemporary

*Cf. *My Development and Character of Gothic Architecture*, pp. 304, 305.

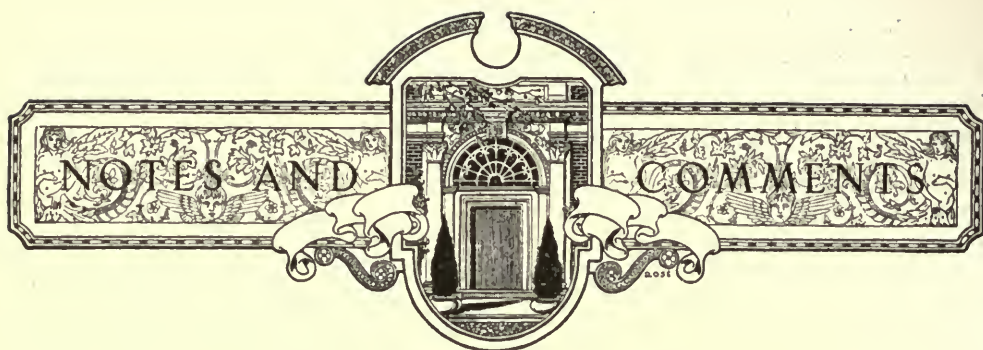
historian, Procopius, tells of this and describes, not very intelligibly, what was done to consolidate the work. He also describes the church as first completed, and his remarks on the dome seem to show that it was then nearly the same as it now is. It is said, by other old writers, that in the year 558 the eastern part of the dome collapsed during an earthquake and that the emperor restored it, making it twenty feet higher. Since that time the monument appears to have remained as we now see it, save for extensive re-workings of some parts of the exterior, and for the addition of Turkish minarets, and some other things which now confuse the composition. Yet, notwithstanding all alterations and accretions, the external aspect of the whole as it now stands is very admirable. The vast dome with the abutting half-domes, east and west, the massive buttresses, north and south, and the square mass enclosing the pendentives, make up a total scheme both structurally logical and of impressive grandeur.

Of all the large domed edifices of the world, Saint Sophia is the only one, save the Roman Pantheon, that is built on rational lines, and it is unique among the architectural works of the Middle Ages for duration. Its builders recognized the true principles of stability in dome con-

struction. They saw, as the builders of the Pantheon had seen, that no hemispherical vault of stone masonry can be made safe without abutments reaching far above the springing; and that therefore such a vault cannot be made a very conspicuous feature externally without departure from sound principles of building. The dome of Saint Sophia is accordingly not imposing from the outside, as the great domes of the Renaissance are, all of which are maintained precariously by binding chains.* It is true that the Italian architect, Fossati, who followed Poleni's example in the dome of Saint Peter's, put a chain of iron around this dome in the last century, as a measure of precaution, but the structure had already survived for twelve hundred years before it was done.

I regret that this study of Saint Sophia is not based on examination of the monument on the spot. My information has been gathered from some seventy large scale photographs, acquired for the Fogg Museum of Harvard University, showing every essential feature of the structure in detail. These photographs are always accessible to anyone who may visit the Museum and ask for them.

* I have discussed this matter in detail in my *Character of Renaissance Architecture* (The Macmillan Company, New York, 1905), pp. 24-55.



Park Foresight In Exposition Planning

What shall be the aftermath of expositions in heritage to the city plan? When the cheers of closing have stilled, the last goodbye been said; when the lights have been turned out with fitting ceremony at the twelfth hour of the last day and the many visitors from other places have taken their departure; with the obscurity of yesterday already seeking to enshroud the magnificent structures, their impressive approaches and forecourts, their settings and greensward, their embellishment of balustrade and parterre, of fountain and mirror basin and all the golden concepts that the architects and assistant artists have contributed to glorification of the exposition ideal, what fateful forces shall await the first glimmer of the morrow to enter upon the scene? Shall in the early glow of dawn arrive a jackal horde to strip away exhibits and all objects of value, and then building wreckers and salvage companies to break up the remains?

Is appreciation so fleeting, memory so fickle? Would it not be better that the entire exposition should lie a-mouldering than that noble avenues and vistas, cascades and sculptured fountains should be annihilated so ruthlessly; than that splendid gardens, achieved by utmost effort of architect and gardener, should suffer ignominious end with no hand raised or word said for their preservation?

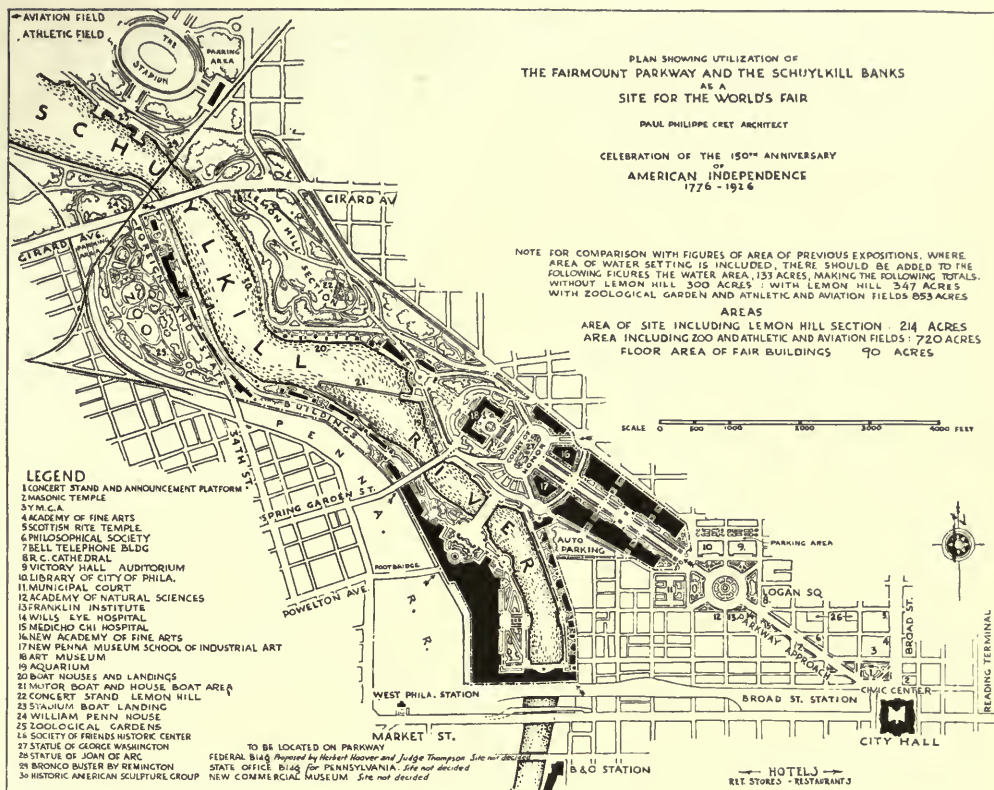
A protest is sometimes lodged against tearing down exposition buildings adaptable to other purpose; there have been efforts in one or two expositions to make some of the buildings permanent; a scheduled exposition has proposed to build "in stone, not staff". But such thought applies only to the buildings; no patronage is extended to permanence of grounds, to perpetuation of the park areas and gardens common to every exposition.

Possibly the extent and cost of the landscape setting of an exposition are not generally com-

prehended; at St. Louis, 75 miles of roadway and walk were constructed, 9,000 deciduous trees were planted, 1,300 evergreen trees, 60,000 shrubs and 5,000 vines. The exposition grounds included a horticultural park of 50 acres, a sunken garden 750 by 150 feet, a rose garden of 7 acres, with 10,000 plants which included every hardy variety. The cost of cascades and water basins was given as over \$300,000; of landscape gardening, over half a million. Such expenditure was not unique to St. Louis, for the San Francisco Exposition included a cost item of \$600,000 for "gardens".

Preservation of the garden and landscape features of an exposition after it has ceased to exist as such, is not a new idea, though one as yet unaccomplished to any extent. Ten acres now known as Kountze Park were donated to the City of Omaha from the grounds of the Trans-Mississippi Exposition held there in 1898, and two miniature lakes made from the "Hand Mirror" lagoon which featured that exposition. The grounds of the exposition held in Nashville in 1897 have been turned into a city park, and the park department at this time is expending \$200,000 in re-building the replica of the Parthenon which was a part of that exposition. Piedmont Park in Atlanta comprises the grounds of the 1895 exposition held there, and Charleston boasts a 75-acre park on the site of the 1901 exposition held in that city. The first two examples, however, were fair grounds which had been partially used as parks before the exposition periods, and little evidence exists in the latter two examples that other than the most minor advantage was taken of any landscape portion of the exposition layout. Likewise no record appears that the designers of the Chicago or the San Francisco Fairs looked beyond the closing day of those expositions. Obviously the design of none of these expositions anticipated retention of the grounds permanently or park accomplishment by mere removal of exposition buildings.

San Diego, on the contrary, designed its ex-



position with view to eventual park and public garden endowment. Unfortunately the city failed to consummate its plans promptly at the expiration of the Fair. The war at the close of the exposition caused the temporary buildings to be converted into barracks, a proper and worthy proceeding, the need for which has now passed; and it remains to be seen whether the same idealism and civic pride which distinguished San Diego in its initial accomplishment will signalize the community during the post-exposition period. Mr. Goodhue sounds a note of disappointment in the delay: "I am certain that were the temporary work to be removed, the various sites properly parked and planted, with formal parkways, allées, fountains and pools, the resulting garden would in time be one of the finest, perhaps, on this side of the water." The beautiful drawing of the future possibilities of the San Diego Exposition site arouses one's enthusiasm in Mr. Goodhue's vision and hope for its speedy realization.

Philadelphia in its plans for an exposition to commemorate the 150th anniversary of the signing of the Declaration of Independence, gives importance to the factor of permanent

one hundred sixty-one

park development in its selection of exposition site. In the Report of the Engineers' Club of Philadelphia, prepared in collaboration with the Philadelphia Chapter of the American Institute of Architects and the Philadelphia Real Estate Board, emphasis is placed upon the salvage which may be expected after the Fair, in the form not only of permanent buildings but of parks, bridges, monuments, and landscape features. There have not been specifically mentioned the game and athletic fields which are common to exposition, nor the bandstands, pavilions and ethnological shelters which might be retained profitably.

It is proposed, on the other hand, that the Philadelphia exposition be located on park area already in possession of the city, so as to eliminate the cost of acquiring land. This is a many-sided question. St. Louis experienced little opposition to a park location for its World's Fair, according to its printed report:

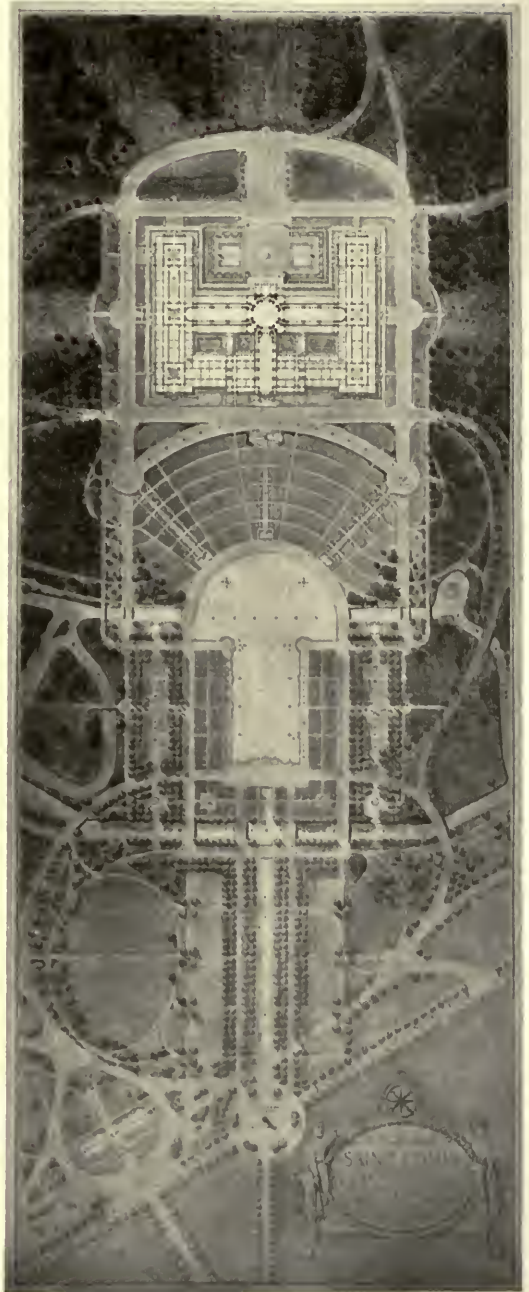
"The selection of the western half of Forest Park for the site was accepted and approved by the sentiment of the city. The location was endorsed as admirable by the press, and by the country at large. The result of a test suit to

enjoin the use of the park for the purpose served to emphasize the unanimity of approval. The petition was argued and the injunction was denied after a week's consideration."

The aesthetic requirements of an exposition and park area are similar, in the sense of picturesqueness, value of water in the landscape and the desirability of "offscape". It is stated in connection with the Fairmount Park proposal that "it might be thought that there would be possible inquiry as to the appearance of the Park, due to the selection of a site within it, although a careful topographical survey will reduce this possibility to a minimum and the ultimate appearance of the Park will be improved rather than injured." This would appear to be substantiated by St. Louis again: "The Park is more beautiful and attractive than it could possibly have been if the World's Fair had not been held there." A further statement, however, should not escape attention, that "the grand total of \$1,457,747.98 was expended for the restoration and betterment of Forest Park." This estimate probably included the Art Building and the statue of St. Louis.

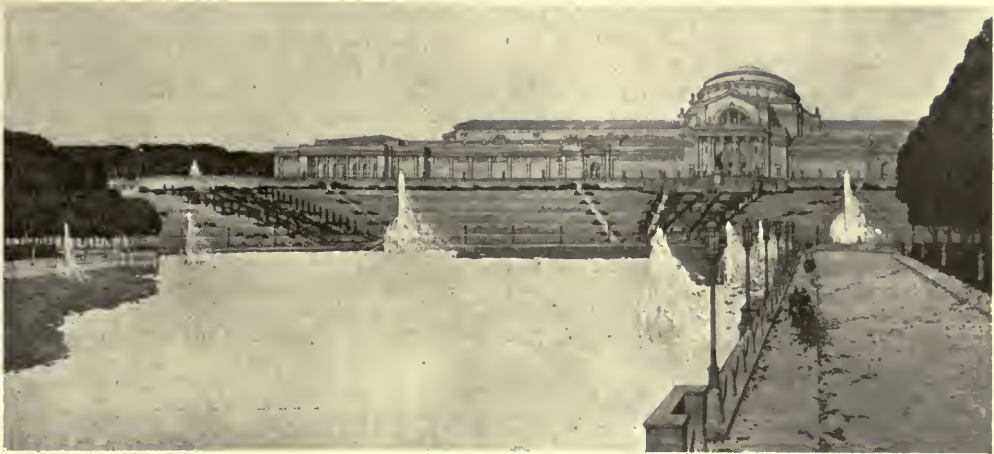
An advantage from the park standpoint may be advanced that the area needed to accommodate a modern exposition—estimated for Philadelphia to be from six to eight hundred acres—can rarely be found within a single park, unless so outlying as to be inconvenient of access, and that the area necessarily added may later be retained as permanent park extension. The Pan-American Exposition in Buffalo unfortunately bestowed no such benefits, although the layout of the exposition included part of Delaware Park; aside from such portion of the park area as was used, the exposition ground has been built up for residence and industrial purpose. Neither did the City of Cincinnati profit by the extension to Washington Park which was used in connection with the exposition in 1888: "After the close of the Exposition the property was left in its original condition, nothing being added or taken away from the park system"—a quaint expression by the park authorities of relief at having come out of the affair so well!

The placing of a fair within a park area doubtless hastens a park development. In a report by the Audubon Park Commission of New Orleans is the statement: "In the year 1884, the World's Industrial and Cotton Centennial Exposition was opened and the park at a bound gained a national reputation. The grounds of the park were much improved by planting, paths and driveways, which were the park attractions for many years. Unfortunately, the care and upkeep of these improvements absorbed all the funds which the Commission was



Plan by Cass Gilbert for the reclamation and restoration of a portion of Forest Park, St. Louis, occupied by the World's Fair.

able to obtain." There is an English saying that "he who inherits a farthing needs spend a pound"; and the expense of upkeep may often



The central portion of the St. Louis Museum of Fine Arts, Cass Gilbert, architect, was permanently constructed at the time of the World's Fair. The radial cascades recall the original exposition plan.

preclude the maintenance of exposition gardens intact. This factor should not militate against retention of some portion of the gardens, at least, and of the entire area until such later time as adequate finances may permit their full restoration and even expansion, as has come to pass within the last few years in the case of New Orleans.

An exposition site as pointed out in the Philadelphia report should be such as to bring about increase in taxable property of the city after the exposition and have a good effect on the city's future planning and development.

Illustrations abound of the increase in value of real estate adjacent to newly developed parks, Kansas City being an outstanding example of values enhanced in excess of the cost of the entire park system. Regarding the effect on future city planning, the Seattle Chamber of Commerce reports one of the after effects of the Alaska-Yukon-Pacific Exposition to be "an extension of the park and playground system, which had origin in the public spirit that was engendered by the Exposition."

Paul P. Cret, whose plan for utilizing the parkway and adjacent portions of Fairmount



The Grand Basin of the World's Fair is retained in the Cass Gilbert plan for the restoration of Forest Park, St. Louis. The Festival Hall and Cascades which featured the Exposition have been removed and the amphitheatre regraded according to the new design.

Park as a site for the Sesqui-Centennial Exposition accompanies this article, gives as two main purposes in his selection of site:

"First: To bring about within a reasonable time the completion of the Parkways and the improvement of the river banks. This may be achieved by securing the necessary condemnation of land by including it within the limits of the Fair and by making compulsory improvement of the site, all of which, later on, will become a permanent part of Fairmount Park and the Parkway.

"Second: To have as large a part of the buildings, bridges, roads, and decorative features as possible built in permanent materials, so as to become city improvements after the end of the Exposition.

"A fair which does not leave behind some permanent benefit to the city where it is held, fails in one of its most important results. Paris has gained from former expositions the Trocadero and its garden, the Alexander III Bridge, the two Palaces of the Fine Arts at the Champs Elysées. Other cities have in the same way, by using foresight in linking a temporary exposition to general city planning, gained assets which could not have been secured without the help of popular enthusiasm created by a world's fair scheme."

Mr. Cret, like Mr. Goodhue, sees a great park and garden scheme as an ultimate ideal of expositions rather than a haphazard salvage. "Not heaven itself upon the past hath power," and if a city is to enjoy an inheritance from expositions rather than suffer an aftermath, the first plan must anticipate the eventual park lay out. Failure to realize this in the past may have occasioned the heavy expenditure in Forest Park, St. Louis, where, according to the landscape architect of the grounds, who was director of restoration as well, roads were changed because they "conformed to building lines and could not be used in the plan of restoration" and the formal canals of the World's Fair waterways were converted into a chain of naturalistic lakes. It is interesting to examine in this connection the after-plan of Mr. Goodhue, which eliminates the building features of the San Diego Exposition without necessity of complete change in general layout.

A park may be such without aping a wild, untrammelled woodland, and the stamp or impress of an exposition design may well be retained as commemoration and record of the exposition once held there. If a park is a legitimate after-product of an exposition, the exposition ground plan may be seen as a park in embryo. A park which perpetuates rather than erases the characteristics of an exposition will inherit the virtues of that exposition. The

original design, like a palimpsest, will influence the park development along lines common to European parks but seen infrequently in this land where the "naturalistic school" held firm sway during the pioneer days of park development and not until recent years has been subject to challenge. Philadelphia by foresight in the design it adopts for its coming exposition may kill two birds with one stone and achieve one of the finest laid out parks in this country by process of descent. As a result of Philadelphia's example, magnificent parks, parkways and public gardens may well become the logical civic patrimony of expositions henceforth.

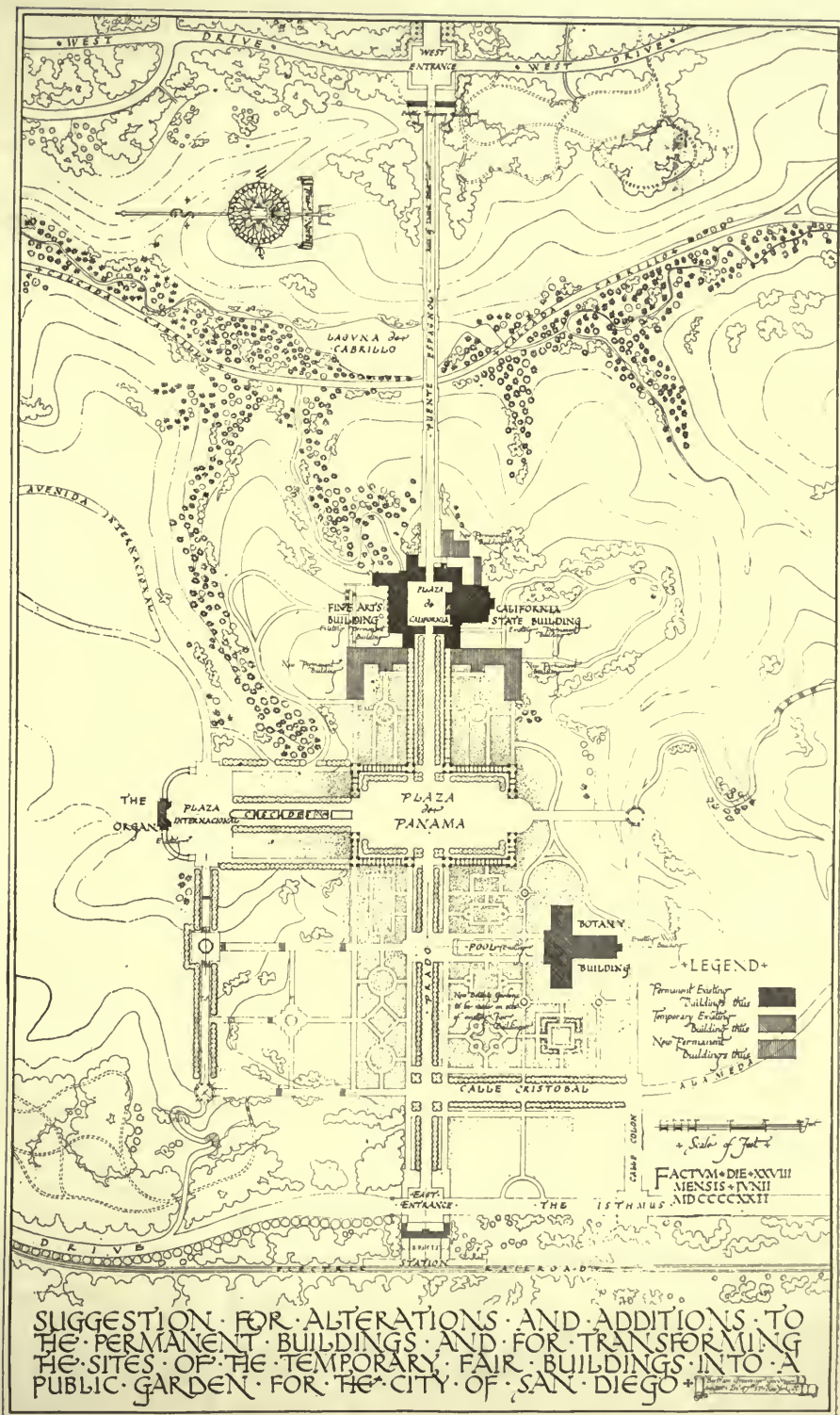
GEORGE BURNAP.

A Method for Color Description

In certain arts, it is necessary to depend for the preparation of pigments upon individuals who are not artists, and who by training or temperament are incapable of grasping the aesthetic objective. The making of colored diagrams, stating precise requirements, with those pigments most generally used by painters or decorators, is not a practical solution, as there is always considerable difficulty experienced in matching colors produced by one chemical method with other types of pigment.

Another argument against the preparation of such drawings is the time and consequent expense involved; this alone renders the consideration of a practical solution a profitable line of thought. The designers in certain applied arts constantly feel the need of a reliable means with which to describe simple decorative color requirements, in such fashion that an accurate interpretation may be assured by those who are to prepare the requisite colors. Such a resource would be invaluable in such crafts as dyeing, ornamental painting, terra-cotta, faience, etc., etc. The main difficulty lies in stating with any degree of accuracy the denomination of certain subtle quantities such as are contained in the two most important factors of color effect—radiant-energy and tone-value; a further difficulty lies in the intangible character of composite tones.

In view of the fact that equally indeterminate factors in music have been reduced to graphic description, the prospect of a practical solution appeared less far-fetched. In music, a simple sound, a complex tone, key classification, sound volume, and other musical features are so transcribed that one general interpretation only is possible. A plan was vaguely contemplated by the writer for some time of



DESIGN FOR A PUBLIC GARDEN FOR THE CITY OF SAN DIEGO. BY BERTRAM G. GOODHUE, ARCHITECT.

paralleling musical methods for color description. The general plan was on the following lines: Each elementary color with its modulations would correspond to a musical key. The elements of composite tints could be indicated in much the same manner as that which is adopted in "figured-bass" to denote those sounds that are grouped together to form a chord. Chromatic intensity, or radiant energy, could be conveyed by certain signs, just as the gradations of tone that exist between a fortissimo and pianissimo are stated in music. But, as an exact statement of the degree to which this latter quality is present in color, is vital to effect, the inadequacy of signs to convey grades of color intensity called for another solution.

A very interesting little brochure entitled, "The Munsell Color System," treating of this subject, was recently brought to my notice, in which a method for measuring the principal factors of color effect is ingeniously contrived. It treats in a general way with the colors of the spectrum, but in such a manner that its principles might be applied to most types of pigment used in the applied arts. The objective of the system is to enable us to state a color in formula form. In the plan devised for color analysis, a color is regarded from three separate angles, viz.: Hue, Value, and Chroma; these terms are defined as follows:

Hue.—This is described as "the quality by which we distinguish one color from another, as a red from a yellow, a green, a blue, or a purple". A diagram shows the five elementary colors with their five complementary colors arranged in their prismatic sequence: Red, Red-purple, Purple, Purple-blue, Blue, Blue-green, Green, Green-yellow, Yellow and Yellow-red. The next diagram shows the two ends of the ribbon joined together making a circular band; the spaces between each of the above colors is divided into five sections. The spectrum colors are shown in complete rotation. The ten divisions between the primary colors cover each primary in its pure state, and the intervening transitions to its adjoining primary; these are numbered from 1 to 10. The "hue-formula" for a color that is neither red nor yellow-red, might be 7R, or 8R, according to its nearness to red, or to yellow-red.

Value.—This is described as "the quality by which we distinguish a light color from a dark one." A diagram represents the scale of tone values by a vertical pole, divided into nine equal parts. A systematic gradation of tones ranging between black and white, determined by the photometer, fill the nine sections; number five being the mid-tone value. When determining a color's value for formula statement, it

takes the number of that tone on the scale of which it is the nearest approximation. This number in the formula is placed above the line,

e.g., a blue of medium strength is B $\frac{5}{-}$.

Chroma.—No definition is given of this term, but the summary of a lengthy explanation is, that it corresponds to "radiant energy." An ingenious device shows the inter-relation established between Hue, Value, and Chroma. Chroma is indicated by lines that converge from the spectrum hand to the axis, on which the tone scale is graded. In a formula, Chroma is indicated by a figure placed below the line. The formula for a green of medium tone-value,

and of medium intensity would be, G $\frac{5}{3}$.

There is an advantage in this arrangement of the spectrum colors on a circular plan, in that the complementary color is at the opposite end of that axis on which its primary is located. An interesting diagram shows the way in which the result of color mixtures may be predetermined, developed upon the phenomenon demonstrated by the Maxwell Discs, which proved that by revolving at high speed a card, covered in equal parts by a primary color and its complementary, a perfectly neutral grey is produced, whatever the combination of primary and complementary. The diagram shows the degrees of color modification that result from various mixtures.

The Munsell principle is applied to the problem of color balance in design, on the basis of tone and chroma measurement. Colors of the greatest radial properties are allotted a higher range of numerals than colors possessing a lesser degree. A red, for example, takes ten numerals to cover its range, while its complementary, blue-green, needs but five. The method of establishing a color balance is explained as follows: "Let us suppose that we wish to employ in a design the maximum of red, with blue-green of middle value. Since we are speaking of balance, a pair of scales is an apt figure with which to illustrate the point. In the pan on one side we put five

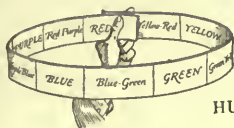
blocks of red of its maximum Chroma, R $\frac{5}{-}$. 10

To balance this we must put in the other pan, ten blocks of the strongest blue-green, which

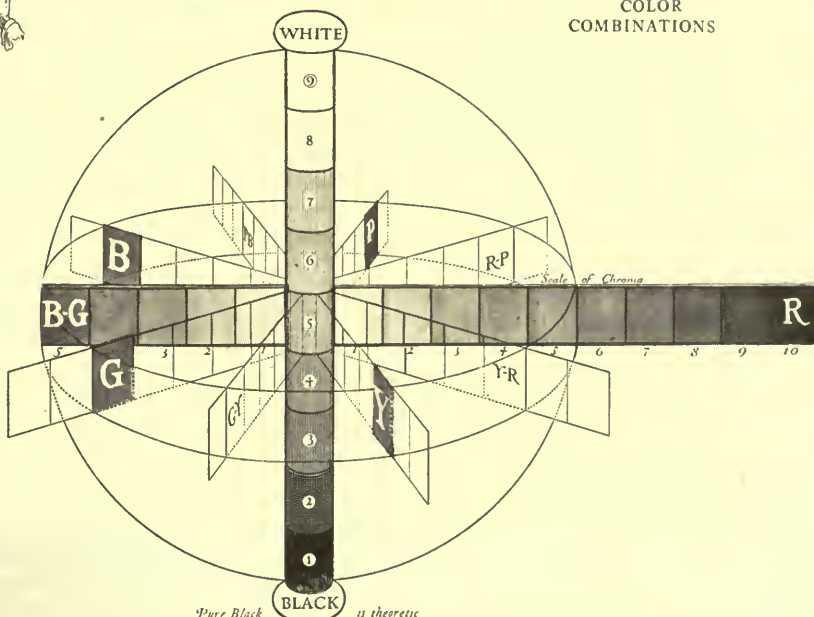
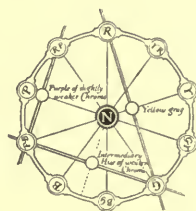
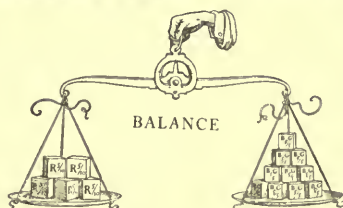
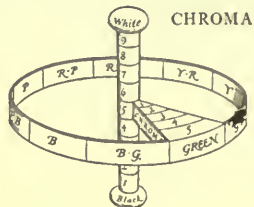
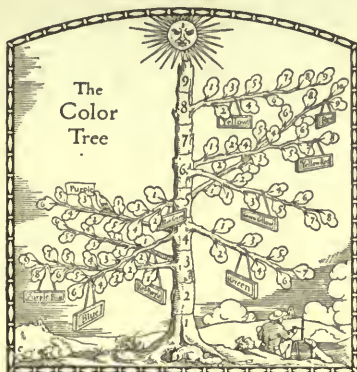
is B.G. $\frac{5}{-}$. We will find that to balance two

colors of unequal Chroma, but of the same tone-value, we must use a larger area of the weaker color, and a lesser area of the stronger, and that the proportions are simply in inverse

one hundred sixty-six



HUE



Pure Black is theoretic and not practically attainable.

Therefore Black and White are represented by words only and Value step 1 is the darkest gray and step 9 the lightest



ratio to the strength of Chroma in each: or,

$$\text{with } R \frac{5}{10}, 5 \times 10 = 50: B.G. \frac{5}{5}, 5 \times 5 = 25, \text{ the}$$

 color balance will be obtained by 50 parts
 blue-green and 25 parts red." On the practical
 utility of such adjustment in designing, it is
 futile to comment, other than to remark that
 it would inflict a serious embarrassment in
 composition: we quote merely for its theoret-
 ical interest. A plan for composing color is
 touched upon, but it is of little practical value.
 LEON V. SOLON.

The time has been extended in the competi-
 tion for a design for the proposed Calvary
 Baptist Church at Washington, D. C. Com-
 petitors' sketches will be accepted up to and
 including September first.

Architects are invited to submit plans and
 designs on a competitive basis for the pro-
 posed Church and Sunday School at Williams-
 port, Pa. Particulars may be obtained from
 the Rev. W. W. Scholl, Pastor, 1416 West
 Fourth Street, Williamsport, Pa.

The Indiana Society of Architects are making
 the proposal to the War Memorial board that
 competition for the designing of the Indiana
 war memorial shall be put upon an equal com-
 petitive basis for Indiana and outside archi-
 tects.

This proposal runs counter to the plan the
 architects declare was suggested recently by
 the memorial board in conference with the
 architects of the state. That plan was to invite
 certain prominent architects from outside the
 state to compete, with an assurance of com-
 pensation, while the Indiana competitors would
 receive nothing unless a local design should be
 accepted.

The architects' counter-proposal suggests
 that a series of prizes be offered, architects
 throughout the country taking equal chance.

Tenth International Congress of Architects

The Tenth International
 Congress of Architects will
 be held under the auspices
 of the "Société Centrale
 d'Architecture de Bel-
 gique" in Brussels, Septem-
 ber 4-11, 1922.

An International and a National Retrospective

Architectural Exhibition will be held at the
 same time.

There was never a more auspicious moment
 than the present for holding an International
 Congress. The war, it will be remembered,
 interrupted the preparations for the Tenth
 Congress, which was to have been held in
 Petrograd in May, 1915, under the august pro-
 tection of H. I. M. Emperor Nicolas. During
 and even since the war the architects of various
 countries have been isolated from each other.
 It is further thought to be an especially appro-
 priate time for renewing these gatherings, when
 the Société Centrale will be celebrating the
 fiftieth anniversary of its foundation.

The Congress, which will include delegates
 from all friendly countries, will be held under
 the distinguished presidency of M. Girault,
 Member of the Institute of France. The
 Belgian Committee under the Chairmanship of
 M. J. Caluwaers with M. B. Moenaert as Sec-
 retary, is assured of the coöperation of Spain,
 Holland, Canada, Portugal, England, Italy, the
 United States, and Switzerland.

American architects are cordially invited to
 attend and take part in what will be one of
 the most unique and original gatherings of
 architects ever held. The subjects to be dis-
 cussed are of international interest; the ex-
 cursions will be instructive and the receptions
 of unusual interest.

There is a permanent Committee of the
 Congress that attends to all the business of the
 organization between sessions. It also selects
 the country in which the next Congress is to
 be held, and the subjects for discussion. There
 are, about one hundred members from various
 countries. The American Section consists of
 Francis R. Allen, Glenn Brown, W. R. Mead,
 Cass Gilbert and George Oakley Totten, Jr.,
 Secretary.

All desiring to attend should communicate
 with the Secretary, 808 17th St., N. W., Wash-
 ington, D. C.

Growing recognition abroad of the achieve-
 ments of American architecture is attested by
 the bestowal of the Royal Gold Medal for
 architecture upon Mr. Thomas Hastings of
 New York. The medal was founded by Queen
 Victoria in 1848 and has been presented every
 year since that time. The list of holders of
 the medal already includes the names of
 Richard Morris Hunt and Charles Follen
 McKim.

The ARCHITECTURAL RECORD

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A scene from the first act of Mr. Geddes' "Erminie" production, transported without change to his new type of theatre. Every spectator sees everything on the stage at all times. The entire scene yields a sense of luminous space and distance impossible in the existing type of stage. The point of sight in this drawing is from the seat farthest from the stage.

"TOWARDS A NEW THEATRE"

BY

CLAUDE BRAGDON, (F.A.I.A.)



*Being a Description — With Commentary — of a New
Type of Theatre Building designed by Norman-Bel Geddes*

AMERICA has contributed little to modern dramatic literature—the best plays of recent years have been importations. There are, however, certain individuals working in our theatre—or more often outside it, beating at its doors in vain—who are concerned with what has come to be called *the art of the theatre*, and such of their stagecraft as they have succeeded in presenting has won for them an acclaim frequently denied to the actor and the dramatist. They have brought about this strange inversion of values without in the least intending to do so, simply by the force of their sense of beauty—their superior consciousness.

These artists, in spite of an unlooked-for initial success, so far from being content or complacent, are in revolt not only against existing conditions, but against the physical limitations of the theatre itself. What they are coming to desire and discern is a new and different theatre; and this not so much for the use that they themselves might make of it as for the sake of the audience, the actor and the dramatist.

For the audience they seek a closer communion, one with another; a fuller participation; increased facilities for seeing, hearing and enjoying; a sublimation of the emotions and the imagination through new modes of sensuous appeal.

For the actor they seek release from the limits of his proscenium picture frame, where he appears remote, flat, an image moving in a pool of light—like a fish in an aquarium. They would restore him to the world of solids, of three-dimensionality, by enabling him to be seen "in the round"; they would accord him

greater freedom of position and movement: up and down, back and forth, as well as to right and to left.

But the greatest liberation they would accord to the dramatist. The playwright brought up in the school of the theatre is accustomed to limit himself to one or two scenes to an act, or to a single scene throughout an entire play. He takes these restrictions so much for granted that (unless reminded by Shakespere and the Elizabethans) he thinks of them as inherent in the dramatic form, instead of as imposed by the form of the modern theatres. Unconsciously also he confines himself to what he knows can be represented by means and methods with which he is familiar—he clips the wings of his imagination to keep it in the barnyard, as it were. In brief, the modern dramatist, without himself realizing it, has come to think of the drama in terms of stage representation, with the result that his creative imagination is not stimulated into activity by the flux of life. Inevitably writers of more untamed imagination and dearer lovers of life have sought an outlet through the more flexible form of the novel, the tale.

Now the release of audience, actor, or dramatist from the restrictions imposed by the existing type of proscenium or "peep-show" theatre, is not, of course, going to re-create the drama. That renaissance depends on the movement of consciousness and upon that alone. As long as the theatre—that temple of the human spirit—continues to be regarded as "a real estate proposition" and is exploited as such, no flower of the spirit will bloom or flourish there. No fact is better established than that the money-getting

consciousness is aesthetically sterile.

But evidences are not lacking of a transformation of consciousness, of the pressure, both without and within the theatre, of a fresher and more abundant life. Because the artists to whom I have referred feel in themselves this pressure, because they believe in "a fount about to stream," they want to fashion a more perfect vessel for the poured out creative energy when that fount shall be unsealed.

It is not their idea to abandon the present form of theatre altogether or all at once. The proscenium-frame theatre is (naturally) perfectly adapted to that dramatic form which has been adapted to it, but it is ill-suited to the presentation of Greek or Elizabethan drama, and to such plays as would give free range to the imagination of an author accustomed to the liberty afforded by the novel or even of the cinema. Least of all would the picture-frame theatre prove adequate for a new type of dramatic representation altogether—one which is shaping itself in the minds of those dedicated to the discovery of new possibilities of emotional expression in song, in mobile color, in pantomime and in the dance. Some synthesis of all these elements—some inspired binding of them all together—might lead to a new art form: the art of the theatre par excellence.

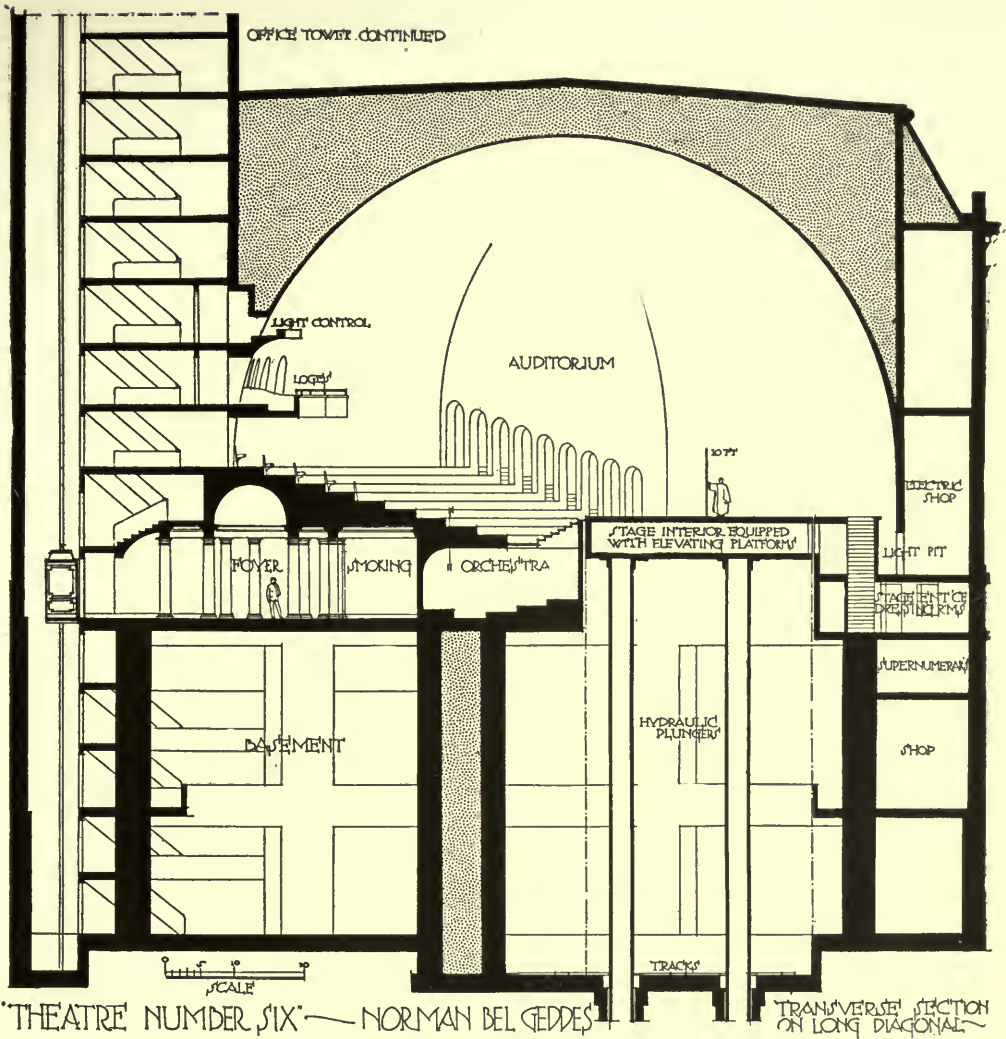
To gain some idea of the grounds for the deep dissatisfaction with the existing (physical) theatre cherished by those who know it best, glance at it for a moment with their eyes. It is convenient, comfortable, even luxurious as to its auditorium—the box-office side; but on the seamy side of the asbestos curtain there has been no substantial improvement, but rather retrogression from the theatres of an earlier day by reason of the saving of space made necessary by high building costs and increased ground rents. The stage has been made shallower; the floor trap, the painting bridge, the green-room have been eliminated; the dressing rooms have been crowded aloft, and, superimposed, are reached only by endless flights of narrow, noisy iron stairs. The many ingenious mechanical devices and felicities of operation and arrangement which

have revolutionized European stagecraft (in its finer manifestations) and even influenced its drama are completely unknown in the modern American theatre, wherein the comfort of the playgoer has been increasingly considered, but the convenience of all back-stage functionaries, including the actor's, has been considered less and less. To sum it all up in a phrase, there has been no intention of consciousness upon the fundamental physical problems of the theatre from any other point of view than that of monetary gain.

Such being the situation, any new solution of the problem of the theatre building should be of interest, and the solution here presented has a unique importance, because it is the contribution of Mr. Norman-Bel Geddes, a man deeply immersed in the existing theatre, but at the same time deeply desirous of that other theatre which exists as yet only in the ardent dreams of those who feel the pressure of a beauty which is new.

Mr. Geddes' plans are presented without change, just as they came from his hand. Because he is neither an architect nor an engineer they must needs be dealt with from the standpoint both of design and structure before they achieve their final synthesis. Such matters as heating, plumbing, ventilation, remain unconsidered; the question of safety has been kept constantly in mind, but not as safeguarded by building ordinances framed for an entirely different type of theatre. These plans, which are developed considerably beyond the "preliminary sketch" stage, were presented by their author at a meeting of the Architectural League of New York; and when it broke up, after an animated discussion which lasted till after one o'clock in the morning, the consensus of opinion appeared to be that Mr. Geddes' plans were practicable, structurally not at all unsound, and aesthetically full of promise.

The theatre is essentially an urban institution; it flourishes best where the tide of life flows strongest and consequently where land values, rents and taxes are highest. Any theatre scheme must therefore take into consideration the economic



aspect of the problem first of all. This holds true whether the building be privately owned and operated, or whether it be endowed. And because the revenue of a theatre is derived from the sale of its seats, that plan will be best (other things being equal), because most economical, which provides the greatest number of desirable seats on the smallest plot of ground.

Because he does not seek to avoid, but rather to challenge comparison with theatres of the existing type in this matter of profitable utilization of space, Mr. Geddes assumes, for the working out of one hundred seventy-three

his scheme, a plot of ground one hundred by one hundred feet, with streets on two adjoining sides. This approximates conditions current in New York for buildings of this class. He finds that by his scheme, placing the stage in an angle instead of against one side of the square, he is able to seat more people than does the old-fashioned theatre of equal size. At the same time he gets a deeper stage, dispenses with balconies and galleries altogether, and gives to each person nearly double the amount of floor space ordinarily allotted. All this is made possible because the main axis of stage and audi-

torium is along the diagonal of the square represented by the ground plan, and the diagonal of a square is the longest line which can be drawn within it, as every schoolboy knows.

That with which this type of auditorium has the closest affinity is perhaps the Greek theatre, with its seats arranged circle-wise, in tiers. But in this modern instance the tiers are not intersected by any transverse aisles whatever; the actor faces an unbroken sea of faces. The entrances being from either side instead of from the back, each tier becomes an aisle for all those entering or leaving it, a thing made possible by the wide interval—four and one-half feet—between one chair-back and the next. By this arrangement every seat has plenty of "leg-room" and also commands an excellent view of the entire stage, none being too distant to be desirable, nor too high up or low down. There is no gallery and there are no boxes—only a single row of loges immediately above and behind the outermost tier of chairs.*

Because this constitutes so radical a departure from the existing type of auditorium, it fails to conform to current building laws relating to theatres, but this does not mean that it would be less safe under panic and fire conditions; there is every reason to believe it would be more so. Instead of being an aisleless theatre, as from the floor plan it appears, it is all aisles, and these discharge into passageways two feet wider than the New York building law requires. The direction of the discharge is gently downward; the absence of a balcony, with its long flights of stairs, eliminates the greatest source of danger in case of panic, while the absence of flies, gridiron and an accumulation of scenery on and above the stage reduces the danger of fire.

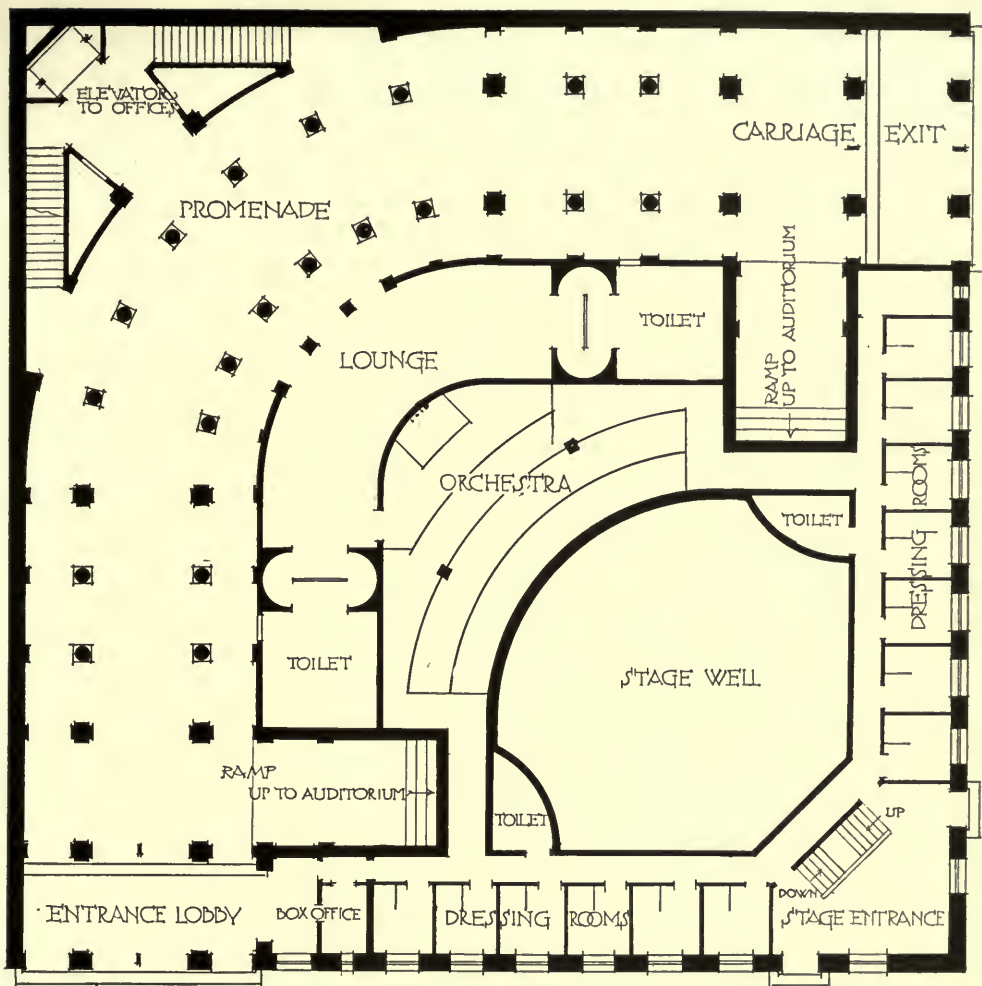
For in the stage and everything pertaining to it Mr. Geddes departs from precedent altogether. The stage is undivided from the auditorium except for a flight of

steps across its entire front, and two side jambs which lose themselves in the curve of the ceiling. The same great dome spans actor and spectator; there is no visible orchestra pit, no footlights, no proscenium arch, nor even a curtain between the two.

To a stage-hand, strange to such a stage, looking aloft for "a line in one," it would be as though his entire firmament were blotted out—swept clear of every appurtenance of his trade. Instead of the usual wilderness of ropes, cloths, battens, borders, his eyes would encounter nothing but the vast sweep of that cyclorama which constitutes both walls and roof. This, capable of being made luminous in any part, in any color, to any pitch of intensity, would yield every imaginable sky effect. All else in the way of scenery is set on movable platforms deep underneath the stage—platforms which are capable of being shifted horizontally, and of being raised and lowered by hydraulic power; in their final position at the proper level they constitute the stage floor. There are two of these platforms, so that while one scene is being played the next is being set, the substitution being effected during a few moments of darkness, or behind a "curtain of light." In this way scene could be made to succeed scene with no descending guillotine of a curtain to cut off the actors' heads, and by a diversion of attention, break the spell.

The major part of the space underneath the auditorium is occupied by a broad quadrant-shaped foyer, extending from one entrance to the other—an ample promenade, which by reason of its great curved colonnade could not but be architecturally impressive. The remaining room between the foyer and the stage on this level is occupied by the orchestra, which is entirely concealed from the view of the audience, the sound reaching the auditorium through perforations in the risers of the continuous flight of steps which forms the apron of the stage. This room is large enough to accommodate an orchestra of sixty musicians; the conductor commands a view of the stage through a large periscope.

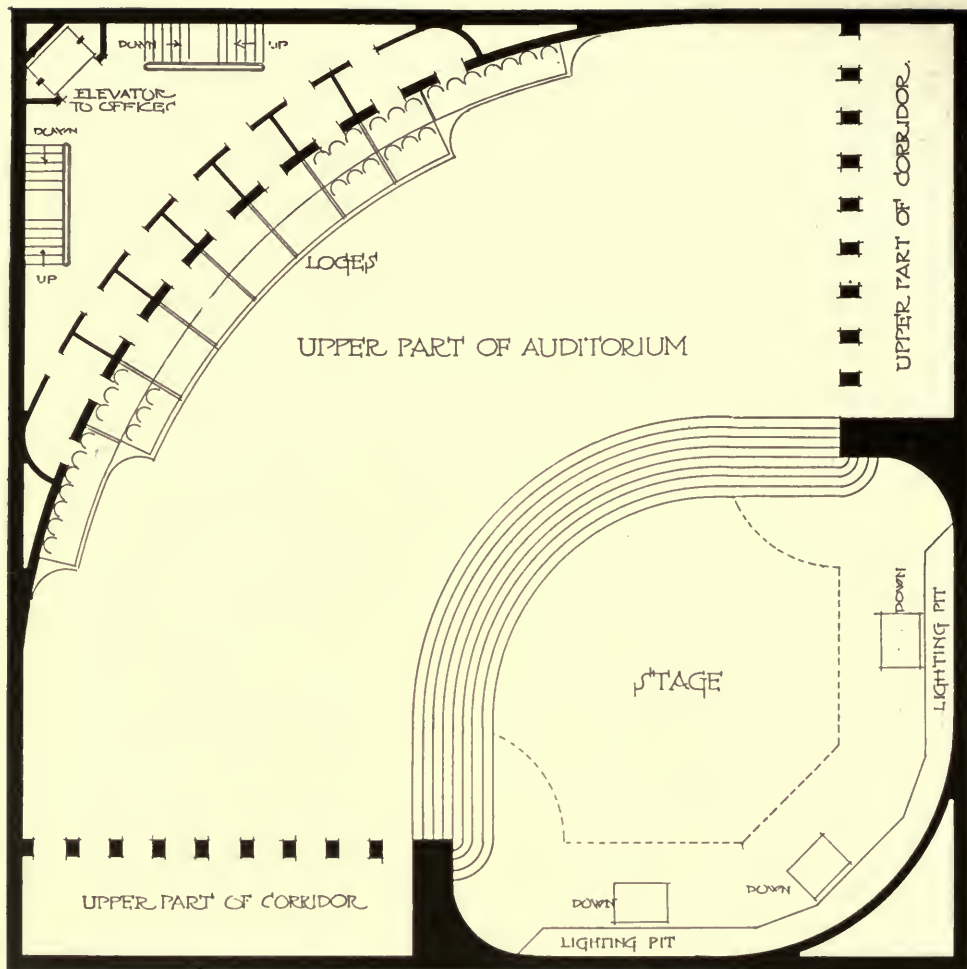
* Certain of the newer European theatres, notably some of those designed by architect Max Littman, resemble Mr. Geddes' in having a single bank of seats with a relatively steep slope, and longitudinal instead of transverse aisles, but the seats have a different relation to the stage, being in front of it (as is customary) instead of "around it".



"THEATRE NUMBER SIX"—NORMAN-BEL GEDDES



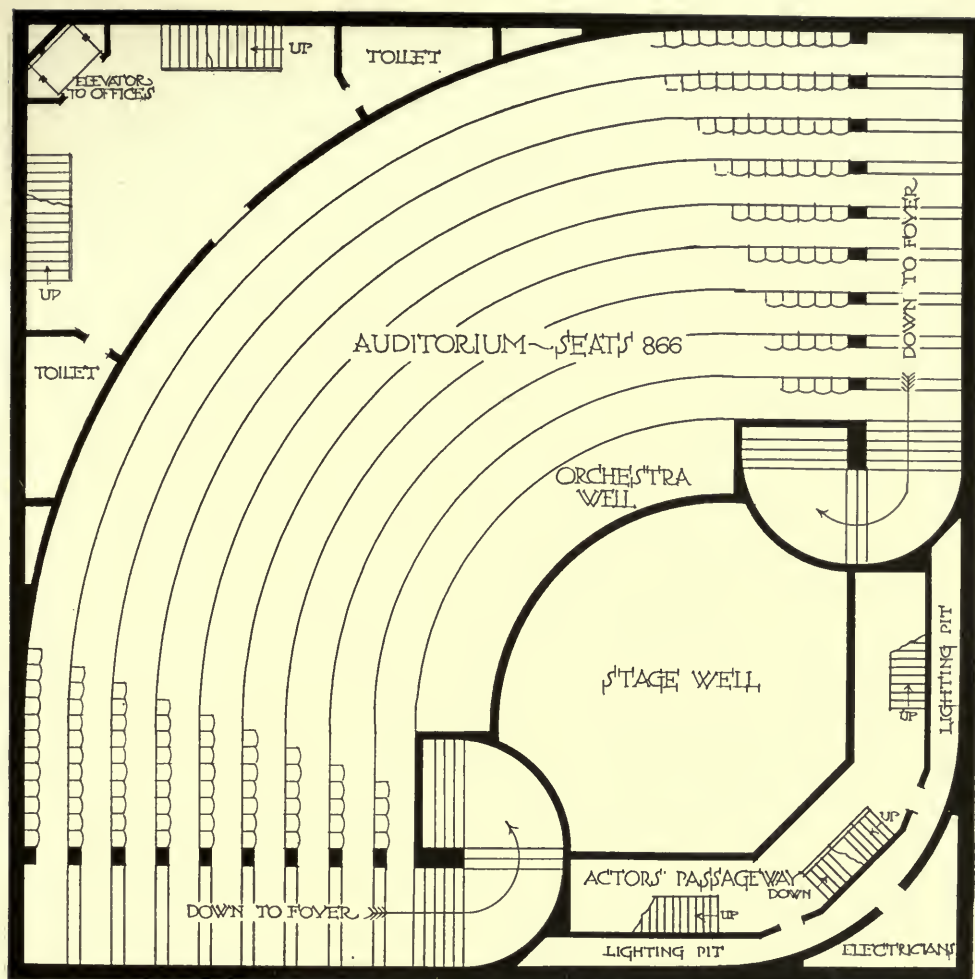
THIS DRAWING REPRESENTS A PLAN OR HORIZONTAL SECTION TAKEN JUST ABOVE THE STREET LEVEL. A CURVED FOYER, 150 FEET LONG BY 25 FEET WIDE EXTENDS FROM STREET TO STREET. FROM HERE, BROAD EASY STAIRWAYS ASCEND TO THE AUDITORIUM ABOVE. THE ORCHESTRA PIT, ACCOMMODATING 60 MUSICIANS IS INVISIBLE TO THE AUDIENCE, BEING ON THIS LOWER LEVEL EACH OF THE 14 INDIVIDUAL DRESSING ROOMS IS EQUIPPED WITH A SHOWER, AND HAS A WINDOW TO THE OUTSIDE AIR.



"THEATRE NUMBER SIX" — NORMAN-BEL GEDDES



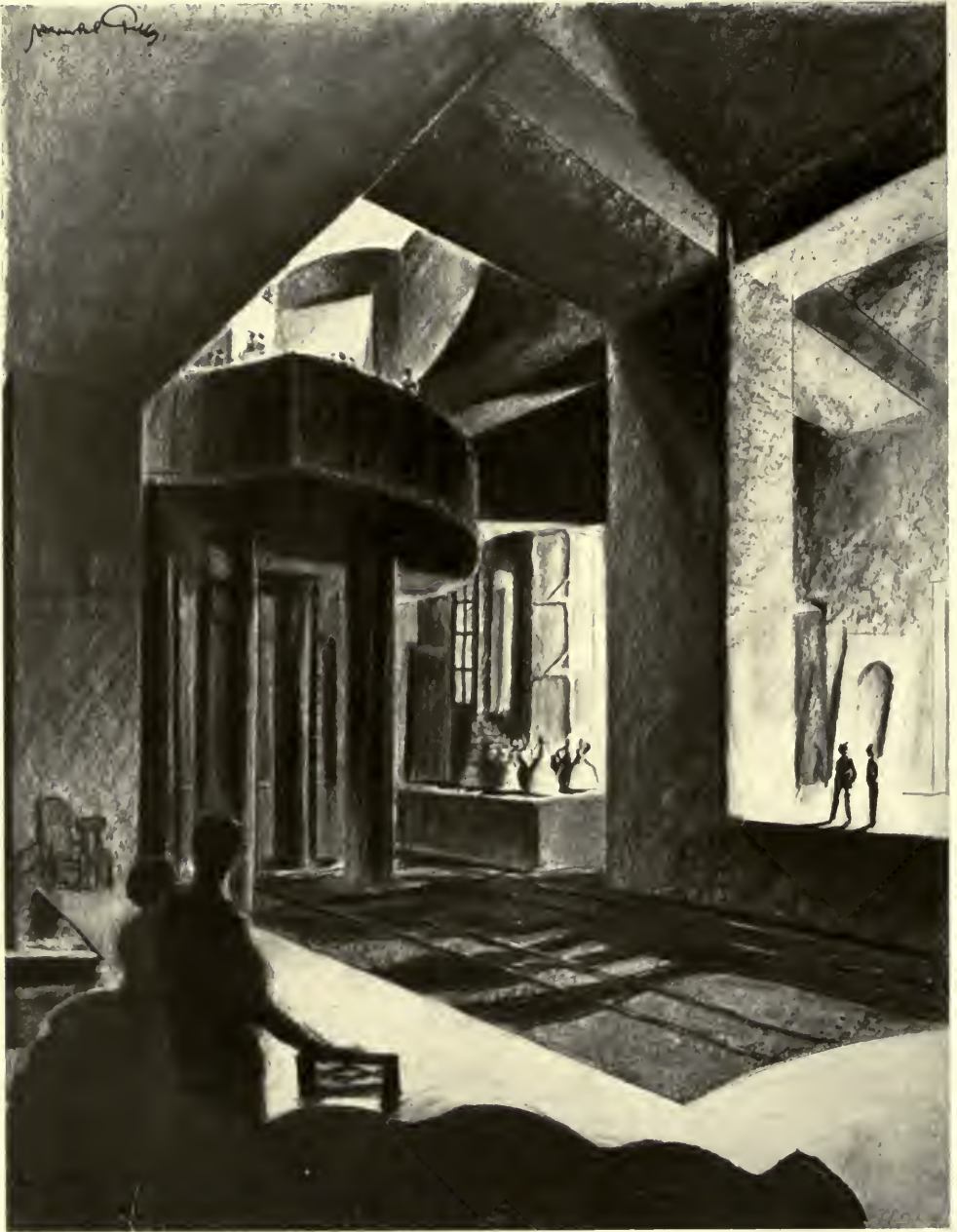
THIS DRAWING REPRESENTS A PLAN OR HORIZONTAL SECTION TAKEN THROUGH THE LOGES AND ABOVE THE STAGE FLOOR. THAT PORTION OF THE STAGE INDICATED BY DOTTED LINES ASCENDS FROM THE BASEMENT WHERE ALL THE SCENES ARE SET. THERE ARE TWO OF THESE ELEVATING PLATFORMS, AND THEY CAN BE USED ALTERNATELY, SO THAT ONE SCENE MAY BE SET WHILE ANOTHER IS BEING "PLAYED." THAT PART OF THE DOMED CEILING BEHIND AND ABOVE THE STAGE, LIGHTED FROM THE PIT, SERVES AS A CYCLOPAMA FOR SKY EFFECTS.



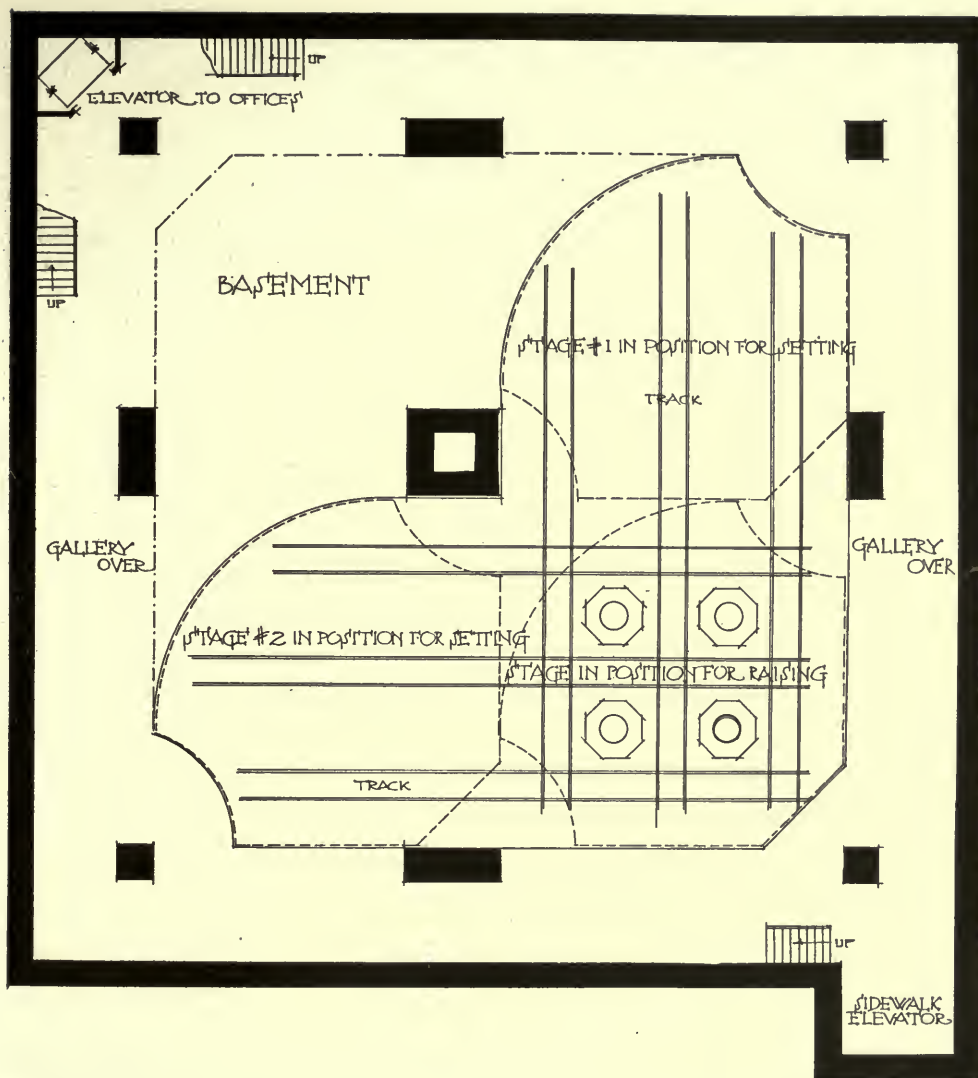
"THEATRE NUMBER SIX" — NORMAN-BEL GEDDES



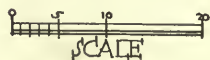
THIS DRAWING REPRESENTS A PLAN OR HORIZONTAL SECTION TAKEN JUST BELOW THE STAGE FLOOR. IT SHOWS THE AUDITORIUM SEATING, AND THE APPROACH FROM THE FOYER BELOW. THE CHAMBER IMMEDIATELY BEHIND THE STAGE WELL IS A WAITING-PLACE FOR PERFORMERS. THREE STAIRWAYS CONNECT THIS WITH THE STAGE, AND ONE WITH THE DRESSING ROOMS BELOW. BACK OF THIS CHAMBER, ADJACENT TO THE WALL OR CYCLOPAMA IS A LIGHT PIT, WHERE CONCEALED LAMPS ILLUMINATE AS MUCH OR AS LITTLE OF THE DOME AS IS DESIRED.



A view of the basement, showing the stage platform midway between the basement floor, where the scenes are set, and the auditorium level, where they are enacted. Two of these platforms are used alternately, one being all ready to raise as the other descends. The entire basement area is available for the shifting and storage of scenery, instead of the constricted wing space as in the existing type of theatre.



"THEATRE NUMBER SIX" — NORMAN-BEL GEDDES



THIS DRAWING REPRESENTS A PLAN OR HORIZONTAL SECTION TAKEN JUST ABOVE THE BASEMENT FLOOR. ABOVE THERE ARE SHOPS IN THE FORM OF A BROAD AND LOFTY GALLERY AND ADDITIONAL DRESSING ROOMS FOR SUPERNUMERARIES.

FOUR PLUNGERS ELEVATE THE STAGE (ALL SET) TO ITS PROPER POSITION. THESE STAGE PLATFORMS ARE TWO IN NUMBER AND ARE USED ALTERNATELY, BEING ROLLED OFF TO ONE SIDE WHILE THEY ARE SET. ALL THIS IS IN A PIT JUST DEEP ENOUGH TO BRING THE STAGE FLOOR LEVEL WITH THE BASEMENT FLOOR.

The dressing rooms are also on this level; they occupy the space underneath the outside edges of the stage, which being adjacent to the streets gives each dressing room outside light and air.

Immediately behind and below the rear of the stage is a passageway or ante-room for actors connected with the stage proper by means of three stairways, the wells of which are capable of being closed by electrically controlled traps. Behind this ante-room—between it and the main wall—is a “light pit” wherein are concealed lamps and projectors which reflect light upward upon the dome, for sky effects.

Below the individual dressing rooms on the foyer level are others for the use of supernumeraries and chorus. The basement is one vast and lofty chamber with a broad gallery midway in its height, on all four sides. This is for use as a shop.

All scene changes are made in the basement, as has been said. Consequently it is here, where there is plenty of room, that all scenery and properties are stored. The stage, when lowered, descends into a shallow pit which brings its floor level with the basement floor. There it is substituted for its fellow, all set ready for raising. The manner in which this substitution is effected will be best understood by referring to the basement plan. The platforms are carried from their original position, at right angles to one another, a distance equal to their diameter, on tracks set in the floor of the pit. All this shifting and raising is under electrical control and is accomplished noiselessly and quickly (the entire transfer would occupy only twelve seconds) for the mechanical problems involved though unusual are neither difficult nor new.

To the eye and mind accustomed to the candy-box style of theatre design and decoration—a style inherited from a time when theatre-going was an amusement of the court rather than the absorption of the populace—the stark bareness and austerity of Mr. Geddes’ interior may come as something of a shock. But a moment’s reflection should convince the unprejudiced that Broadway is wrong and that he is right.

The theatre—this theatre at least—is a

place for the stimulation and sublimation of the mind and emotions through the senses—preëminently through the sense of sight. This is effected by means of dramatic representations which might range through many countries, many styles, many periods—even through the Fourth Dimension and the Eternal Now. Each must be provided with its appropriate *mise-en-scène*—the combination of forms, objects, colors, which express it best. Now the theatre auditorium is as it were the background to this *mise-en-scène* just as it in turn is the background to the action. Being a background for so many and so various things, it should be bare; no more littered with detail and ornament than the ear should be filled with sounds alien to the music it would hear, or the eye with images other than the ones toward which it looks.

But because this theatre is bare it does not mean that it is therefore lacking in beauty. Indeed its very bareness—the unbroken sweep of its dome—gives an unequalled opportunity for beauty of a new and thrilling sort. The beauty of changing colored light—color-music if one chose to name it so—that Art of the future of which Wilfred’s Clavilux gave us the first faint actual intimation, showing what colored light might become when disassociated from all those ideas of corsets, chewing-gum, automobile tires, et cetera, with which the zeal of the advertiser has succeeded in linking it up.

And this brings me finally to the subject of lighting. Mr. Geddes’ lighting arrangements differ in important respects from those in current use; for though the development of lighting has proceeded more rapidly in the theatre than anywhere else, the equipment upon which this development in part depends has not kept pace with the advance.

In the dear old days when it was only necessary, at the beginning of every act of a play, to “throw on yer borders” and “throw on yer foots,” after which the electrician was free to retire underneath the stage and play pinocle with the rest of the crew, it was all very well to have the electrical switchboard—looking like the engine room of an ocean liner—where



Effective representation is possible on this stage completely stripped of scenery. Both views of the stage are taken from the extreme side of the auditorium. There can be no bad seats in this theatre.

it commanded only a near and narrow view of the stage. But now that light is coming to be recognized as an emotional language, like music, with power to induce and maintain moods of the soul—this will not do. Light must be made to pale or brighten, it must slowly transform itself from warm to cold, and from cold to warm, changing key and tempo as it were, in sympathy with what is passing on the stage. To achieve these effects successfully—and many others, more intricate by far—it is imperative that the light operator should work from a compact keyboard, and in full view of the auditorium and stage.

These are the reasons why, in this theatre, the light control is located in a little booth above the loges, behind and above the heads of the spectators and concealed from them, the projectors being on disappearing carriages, hidden by a parapet save when in actual use. Here the light operator sits, remote, unseen, like the organist in the choir-loft of a cathedral, learning to master an art which may usher the human spirit into realms at which music itself now beats in vain.

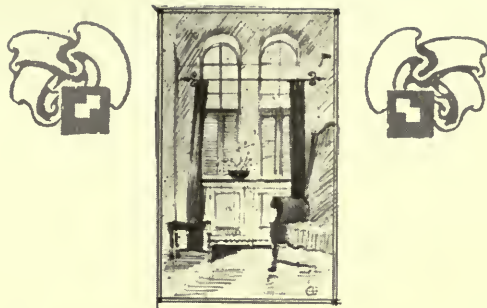
It should be stated that a theatre of this type—with scene and actors thrust forward into the auditorium instead of being kept behind a proscenium picture frame—is practicable and desirable largely by reason of the advancement in the use and control of artificial light. Nothing so distinguishes the most modern stagecraft from that of only a few years back as the new uses to which light is put and the extraordinary functions it is made to perform. Scene changes can be made in utter darkness with the curtain up, or behind a "curtain of light", objects can be made to reveal themselves, conceal themselves, transform themselves by the combined use of light and pigment, scientifically worked out. "Painting with light" is not simply a catchword, but a phrase with an ever-expanding content. By the use of lenses light can be so concentrated and controlled that "mask-

ing" of the old-fashioned sort—concealing by means of curtains, flats, borders—is no longer necessary; darkness can be made to obliterate and light to reveal whatever is desired.

In the theatre we do not want to feel that we are *at* a play, but that we are *in* it—"The work of dramatic art is lived." Only great drama greatly acted can fully arouse in consciousness this inner life, but conditions could be made far more favorable to its induction than they are now. In Mr. Geddes' theatre, on his stage, set and lighted as he or another might set and light it, scene and actors might be made to seem a part of 'life or of inner fantasy, perceived as though at the other end of the optic nerve than that which leads outward toward the world of every-day.

Furthermore, such an arrangement of stage and auditorium would promote that feeling of *rapprochement*, participation, and conduce to the generation of that indescribable common emotion which is perhaps a cosmic emotion under stress of which a dramatic representation becomes dynamic, poignant, rhythmic, exactly in proportion as the spectators become responsive, impressionable, enthusiastic, sensitive to every emotional overtone.

Those great primal orgiastic tides of thought and feeling, the arousing of which was perhaps the very *raison d'être* of the Greek theatre, are practically unknown in modern life—our nearest approach to them being the revival meeting, the prize fight, or the ball game. In them there dwells nevertheless some divine, dynamic quality, perilously poised between creation and destruction, diabolism and ecstasy. Of these great forces we are either ignorant or afraid. But they are destined to re-enter life either in the shape of mob-violence—as a result of repression—or through inspiration to creative effort, if they find a prepared and natural channel such as the theatre—cleaned of its accumulated ignorances and abuses—almost alone affords.



THE
PHI DELTA THETA FRATERNITY HOUSE
CORNELL UNIVERSITY, ITHACA, N. Y.

WILLIAM McLEISH DUNBAR, ARCHITECT

By
Albert C. Phelps

THE problem of the college fraternity house is becoming of constantly increasing importance to practising architects in nearly all parts of the country. Local conditions differ considerably, but the general uses and requirements are so nearly the same at most educational centers that pretty definite types have been evolved.

In some places, as at Yale, the fraternity lodge is isolated, and so treated as to suggest mystery and well-guarded rites, and no living quarters are provided. In most cases, however, the provision of dwellings for the students, and especially facilities for entertainment, quite equals and often surpasses in importance the chapter-room, which is frequently given no external expression whatever.

At Cornell University, with its eighty-two fraternities and associations, the building of fraternity and club-houses has long been a question to occupy the attention of University authorities as well as of students and alumni. A recent bequest by a distinguished alumnus to provide "such thing or things as may conduce to make Cornell a more human place," which is about to take the form of a university union, has been thought by certain individuals to reflect upon the

social system as affected by fraternity domination. This, however, has been most vehemently denied, and it has been pointed out that the donor was a devoted member of a well-established fraternity whose loyalty and constant helpfulness to the university are beyond question. Whatever may be the individual opinion as to the desirability of the degree of fraternity strength attained at Cornell, the practical problem of adequately housing the student body has been largely assumed and if not solved in its entirety by the fraternities, at least so minimized as to make the tardy development of university dormitories possible.

The beautiful surroundings and the availability of sites of considerable area, as well as other considerations, have encouraged the erection of fraternity houses of dignity and permanence and at times of real architectural merit. While the Cornell chapters of the various fraternities perhaps may be justly accused of competitive building, this has not led to extravagance; the houses as a rule represent a mode of living most rational, and in detail particularly they are quite simple as compared with student quarters at English universities and with many dormitories in this country.



PHI DELTA THETA FRATERNITY HOUSE, CORNELL UNIVERSITY,
ITHACA, N. Y.

William McLeish Dunbar, Architect

The tendency in recent years has been to transfer the fraternity center to the north of the campus rather than to build on the campus or in the region south and west, between the campus and the town, as in previous cases.

The Phi Delta Theta Fraternity, conforming to this custom, acquired a tract some ten minutes' walk north of the main University quadrangle. The way from the campus leads across a foot-bridge spanning Fall Creek, which flows through one of those tree-filled gorges so characteristic of the Finger Lakes Region. Whether the gorge is more attractive in winter when the stream is frozen and the cliff-like sides are hung with gigantic icicles, or in spring and summer when the holes between the rapids become popular swimming resorts and the icicles give place to flowering shrubs, is open to question. A short distance north of the gorge lie the trolley-line and motor road; beyond them rises a wooded spur of land of about three acres in area, the site of the house.

Originally partly wooded, the tract was developed as an arboretum by a professor of botany in the University. The later planting had been established about twenty years and has proven of inestimable value as a setting for the building.

The ground is very rugged, and streets—or more properly roads—extend on three sides; west, south and east. A low point is at the junction of Thurston Avenue and Ridgewood Road, at the southeast; and here the tennis court and entrance gate are to be placed. A gravel path winds through the woods, ascending a rise of seventy-five feet to the fore-court of the house. A drive at this level leads to a point higher up on Ridgewood Road near the entrance to another fraternity house beyond.

The Phi Delta Theta House has hollow tile walls covered externally with salmon-colored stucco of unusually effective texture; the roof-covering is tile of a general pinkish tone deepening into reds; the floors are of fireproof construction throughout.

Before the main entrance door there will be a terrace of flagstones and brick planted with evergreen shrubs that will greatly heighten the effect of the mellow stucco walls. Above the entrance arch are the arms of the fraternity carved in buff limestone.

The plan is, on the whole, logically and frankly expressed in the external massing, which lends itself readily to the style adopted—that of the Italian hill towns, with a decided Tuscan flavor. Here one

one hundred eighty-four



PHI DELTA THETA FRATERNITY HOUSE,
CORNELL UNIVERSITY, ITHACA, N. Y.
WILLIAM McLEISH DUNBAR, ARCHITECT.



DETAIL OF SMALL TOWER.

feels that the present-day leaning toward Italian precedent is justified by both the setting and function of the building. Little that is pedantic or affected is noticeable externally or in the interiors, but much of genuine charm and logical expression in a style the essence of which is thoroughly understood.

The scheme adopted is that of the individual suite, rather than the "dormitory system" whereby the studies are grouped in one part of the house and the beds are placed in one or more large chambers, usually at the top of the house. "The design of the new Phi Delta Theta House," says the architect, "had for its first consideration a simple fundamental

idea of great importance—that each man be given a room where he can have absolute quiet to follow his own thoughts in study and reading."

The chapter normally comprises about forty-five active members; the freshmen and generally several others room elsewhere but take their meals at the chapter-house. Provision is made for the housing of twenty-eight men in suites, each of which comprises a study and a bedroom that accommodate two men. The suites are grouped in four units, each of which is provided with a bath. All these comparatively small rooms are placed on three floors in the eastern section of the house. The bedrooms are put at the angles of this part of the building and serve as buffers to the winds. Steam heat is taken to the studies only, the door between study and bedroom being tightly fitted and equipped with a threshold, as if on the exterior.

The finish of the bedroom and study walls is a rough antique plaster giving a warm sunny effect, due to the yellow sand in its composition. This finish is in keeping with the general character of the house and is economical in upkeep. The studies are kept free from the clutter and over-decoration too frequent in students' rooms, but are made attractive by the introduction of a limited number of framed pictures hung from the moulding, and especially by color in the form of small tapestries and Navajo rugs hung upon the walls. Figured or bright-colored curtains of uniform tone are used at the windows.

If any question arises concerning the successful solution of the problem in the

mind of the visitor to this delightful house, it is whether the private quarters have not been unduly limited to provide greater space and luxury in the rooms designed particularly for entertainment. This is due in part to the nature of the site. However, the studies and sleeping-rooms are convenient and comfortable in spite of a trace of that asceticism prevalent in the cells of the great mediaeval monasteries. Indeed no small part of the charm of the whole house is due to this feeling of adequate restraint coupled with an evident appreciation and intense love of the beautiful. If at times a slight trace of immaturity obtrudes itself, one soon forgets this in admiration of the evident spontaneity and total avoidance of the commonplace.

The architect explains—and the visitor will agree—that in the high entrance hall the note of the house has been struck. Somewhat dim, due to the light filtering through heavy glass, the room displays true Italian simplicity of effect. The ceiling beams are roughly adzed and show the cracks of time. The walls are of an ochre plaster with considerable variation of color, tinged slightly with black and rubbed smooth after the manner of Continental plaster work. The lighting fixtures are of wrought iron and a curving stair rail with handsome iron balusters and terminal scroll leads to an arched opening at the side. The black and white tessellated floor harmonizes with the general simplicity and yet adds a desirable richness to the room, which is further relieved by some rather sumptuous furniture—a great chair covered with scarlet velvet and a tooled screen in dark red and gold, surmounted by an old print. In a niche is a Chinese robe of scarlet satin heavily embroidered.

From the entrance hall one ascends by nearly a dozen steps through a low arch to the living room, the large room and in many respects the climax of the whole house. The room measures about thirty-five by fifty feet and is covered by an open timber roof, the trusses of which are some fourteen feet above the floor, which is of oak inlaid with a black wood. Over the entrance arch is a musicians'

one hundred eighty-seven

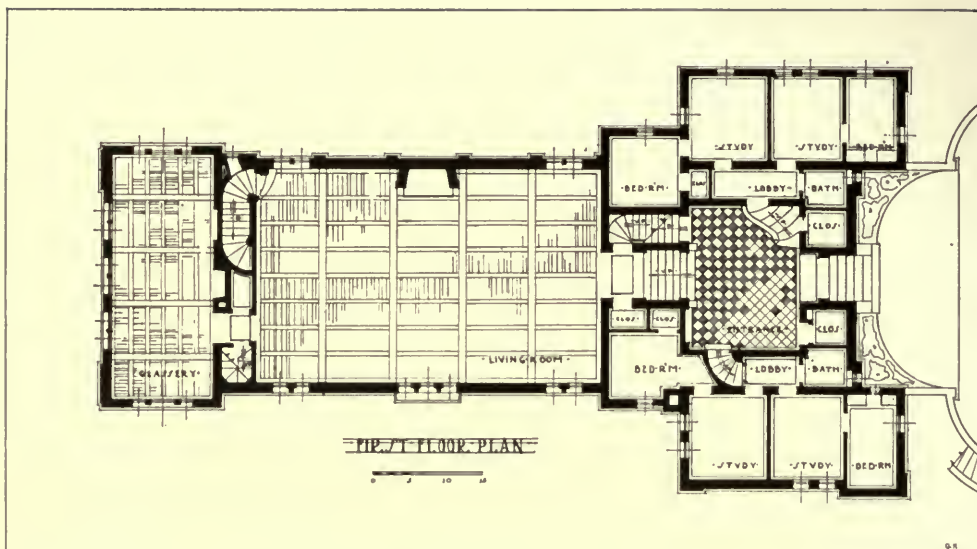


BALCONY OVERLOOKING VALLEY.

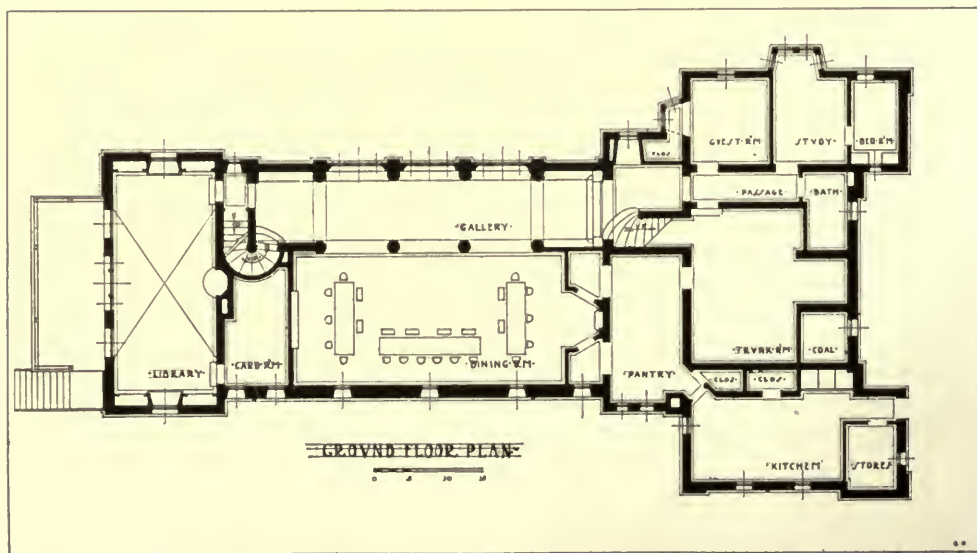
balcony and at the opposite end a gallery reached by a spiral stair-case in the angle. On the end wall, below the gallery, is the only wall decoration of the room—a handsome painted hanging having the essential qualities of a rich tapestry. Beneath the hanging is a fine old refectory table flanked by antique Spanish chairs. Midway on the north side of the room is the chimney-piece with its high stone mantel, and about its raised hearth are grouped some excellent pieces of furniture of Italian design. Brilliant color is



LIBRARY—PHI DELTA THETA FRATERNITY
HOUSE, CORNELL UNIVERSITY, ITHACA, N. Y.
WILLIAM McLEISH DUNBAR, ARCHITECT.



PHI DELTA THETA FRATERNITY HOUSE, CORNELL UNIVERSITY, ITHACA, N. Y.
William McLeish Dunbar, Architect.



PHI DELTA THETA FRATERNITY HOUSE, CORNELL UNIVERSITY, ITHACA, N. Y.
William McLeish Dunbar, Architect.



LIVING ROOM—PHI DELTA THETA FRATERNITY,
HOUSE, CORNELL UNIVERSITY, ITHACA, N. Y.
WILLIAM McLEISH DUNBAR, ARCHITECT.



STAIRS TO STUDY ROOMS.



SECONDARY STAIRS TO GALLERY.

introduced partly in the upholstery of the furniture, but more especially in the scarlet damask window curtains that fall quite to the floor. In contrast with the dim illumination of the entrance hall the effect of a flood of sunlight in the living room is particularly noticeable.

Beyond the living room is a "glassery" or sun-parlor with heavily beamed ceiling and a rugged stone fireplace. From this room one has an unsurpassed view of the broad valley



FIREPLACE IN THE LIVING ROOM

beyond, the lake sweeping away to the north, and directly to the west the pleasant farm lands, all of which combine to recall scenically the hill towns of Italy.

From either end of the living-room masonry stairs descend to a stone columned gallery lighted by small-paned heavily leaded windows of vari-colored glass. The floor is of dull red tile laid irregularly and interspersed with heavy flags. At one end are the alumni rooms and the

house office looking down a beautifully planted swale to a vista of the



ENTRANCE OF LIVING ROOM SHOWING MUSICIANS' BALCONY—
PHI DELTA THETA HOUSE, CORNELL UNIVERSITY, ITHACA,
N. Y. WILLIAM McLEISH DUNBAR, ARCHITECT.



LIVING ROOM, SHOWING GALLERY
AND DOOR LEADING INTO GLASSERY—
PHI DELTA THETA FRATERNITY HOUSE,
CORNELL UNIVERSITY, ITHACA, N. Y.
WILLIAM McLEISH DUNBAR, ARCHITECT.



DINING ROOM—PHI DELTA THETA FRATERNITY
HOUSE, CORNELL UNIVERSITY, ITHACA, N. Y.
WILLIAM McLEISH DUNBAR, ARCHITECT.



GALLERY LEADING TO DINING ROOM—PHI DELTA THETA FRATERNITY HOUSE, CORNELL UNIVERSITY, ITHACA, N. Y.
William McLeish Dunbar, Architect.

lake with its twin light-houses in the distance.

Off the side of the gallery is the dining room with its great circular stone piers and vaulted ceiling, recalling the treatment of the refectory in an Italian monastery. The U-shaped table and the specially designed furniture still further emphasize this resemblance, which is not a mere affectation but is founded upon the fundamental similarity of requirements of the religious and the student brotherhood. The effect of sunlight and shadow on the rough walls and vaulted ceiling is very attractive, and it is proposed to introduce color by means of a limited number of well-placed wall hangings that will harmonize with the upholstery of the chairs.

At the extreme west end of the house, sufficiently isolated for quiet, is the library. This room also has roughly plastered groined vaulting of considerable

height. The panelled woodwork, which is much in evidence, is painted a dull blue-green and heavily antiqued. With this color the muntins of the small-paned windows contrast, painted as they are the same ivory white that is used throughout the house. At the springing of the vault and continuing above the book-cases there is a narrow frieze of light blue edged with green and decorated with illuminated lettering in red and gold. A hooded fireplace occupies the center of the east side of the room, while in the opposite wall are French doors leading to an open porch and steps to the garden. It is planned to close this vista with a small white-columned summer-house, the site of which, directly on the axis of the main house, is flanked by a pair of great sentinel poplars.

The chapter-room is located in the foundations beneath the dining-room. Its external expression—when one under-

stands the arrangement—is the simple unbroken wall surface just above grade on the south side.

The kitchen, pantries, store-rooms, and servants' quarters are at the east end of the dining-room floor.

The house has been occupied less than a year and something still remains to be done in completing walks and approach and adding minor decorations and furnishings. However, in this brief time

there is evidence that the building will "wear well" both in material and sentiment, and as the passing years add the charm of maturity and age and the passing generations of students leave their marks of loyalty and affection, not only will Phi Delta Theta be proud of its home, but the University community will recognize that it is the richer for the addition of this fraternity house of real distinction.



LOOKING INTO THE DINING ROOM.



NORTH DOOR—KENSINGTON SCHOOL, GREAT NECK,
L. I. WESLEY SHERWOOD BESSELL, ARCHITECT.

The KENSINGTON SCHOOL

~ GREAT NECK, LONG ISLAND ~
WESLEY SHERWOOD BESSELL, ARCHITECT

By

Harold Donaldson Eberlein

THE Union Free School, Number 2, otherwise known as the Kensington School, at Great Neck, Long Island, claims something more than a passing notice—first, by reason of its intrinsic individual merit as a piece of modern school architecture; secondly, by reason of the tendency and the aims of which it is a convincing embodiment.

The architect, Wesley Sherwood Bessell, has followed an obvious, straightforward plan, but has incorporated with it certain features that the peculiar exigencies of the occasion called for. As may be seen, the accommodations for the kindergarten are so arranged that the small children in this department have their own separate entrance and need not come in contact with the rush of the older pupils in entering or leaving the building. This provision for the kindergarten serves the present needs, but ultimately, when a separate building is erected for the use of the youngest pupils, the quarters they now occupy will be converted to the purposes of the main school, a change that can be effected without making any alterations in the interior. The basement is well lighted and is equipped with ample locker rooms and play rooms for the boys and girls, sufficient to answer all requirements when the weather is too bad to use the outdoor playground. At one end of the basement are the domestic science kitchens, so arranged that they may easily be converted into a cafeteria whenever occasion arises. The general staircase is placed in the front of the building and at one side of the central corridor, where it is in full view of the principal's office.

In all there are twelve large classrooms, two of which at this time are devoted to the kindergarten department. In its general arrangement the school admits a degree of ready flexibility in the use of its

various parts. Throughout the establishment the appointments are of the most approved modern character, as determined by the State educational authorities, and the details of heating, lighting, ventilation and furnishing leave nothing to be desired. Besides adequate provision for the daily welfare of the pupils the comfort of the principal and of the teaching staff has been fully considered.

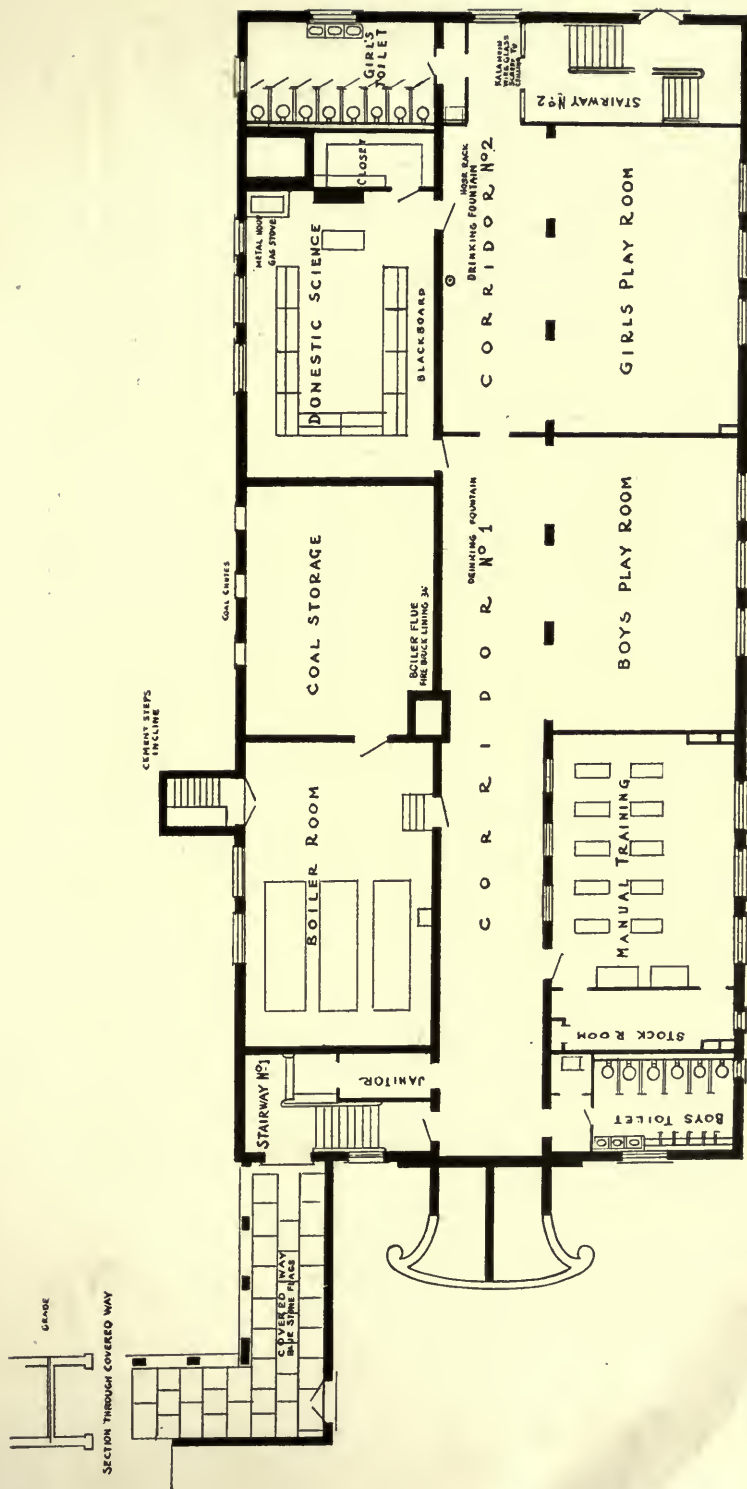
So much might truthfully be said of any modern public school building designed by an architect of average common-sense and technical capacity, in accordance with the standard requirements formulated by the State authorities. Indeed, it is *all* that could be said favorably of not a few such structures. But in the case of the Kensington School there is something more to be noted.

A great many of our public schools are distinctly repellant in their architectural aspect. Sometimes it seems almost a derogatory misuse of the word "architecture" to apply it to them at all. They are structures and products of engineering rather than pieces of architecture. The grace of the art of design has been altogether omitted from their scheme. They painfully resemble factory buildings. They are dismally dull, and display not one iota of the blessed qualities of inventive imagination or originality. Not a few of these deplorable examples have been, and are being, perpetrated by architects whose ability is unquestioned and whose performances in other directions amply testify to their capacity to uphold the ideals of their noble art.

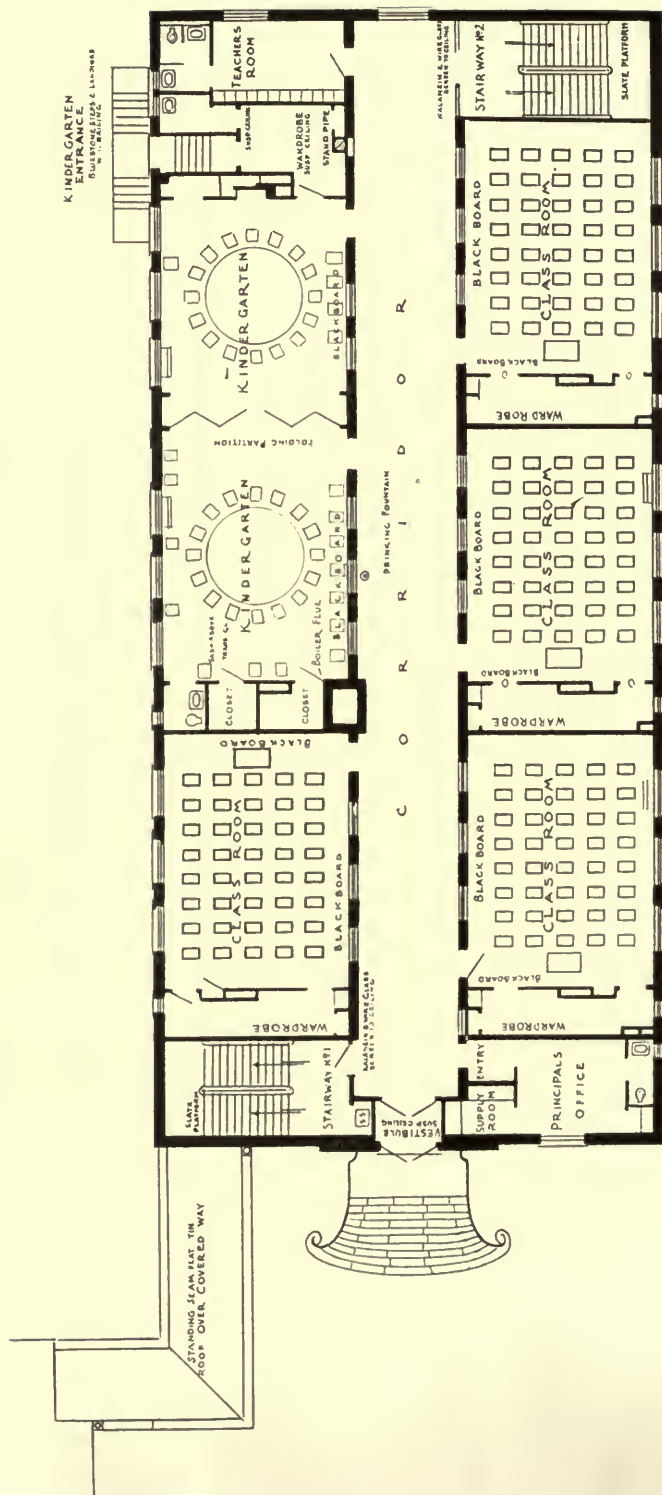
Discouraged, doubtless, by the nature of the numerous and seemingly arbitrary requirements imposed upon them by school authorities, they often produce perfunctory and mechanical structures that embody those requirements and



NORTH FRONT AND WEST SIDE—KENSINGTON SCHOOL, GREAT
NECK, L. I. WESLEY SHERWOOD BESELL, ARCHITECT.



PLAN OF BASEMENT—KENSINGTON SCHOOL, GREAT
NECK, L. I. WESLEY SHERWOOD BESSELL, ARCHITECT.



GROUND FLOOR PLAN—KENSINGTON SCHOOL, GREAT NECK, L. I. WESLEY SHERWOOD BESELL, ARCHITECT.

nothing more. Such performances can never be anything nor look like anything but pot-boiling "jobs". All too often our public school structures are very marvels of bald, stupid, uncompromising ugliness.

This ought not so to be for several reasons. In the first place, during their most impressionable years, children ought not to be set in an unlovely environment that will inevitably tend to blunt their future architectural sensibilities. Furthermore, the adults of a community have a right to and should demand that public structures, paid for out of public funds to which they are obliged to contribute through taxation, shall, in some measure at least, conduce to stimulate the public architectural consciousness and elevate the public architectural conscience. Without such demand it is futile to expect that architectural consciousness and conscience—with neither of which the majority of the public at the present time seem to be grievously overburdened—will be appreciably quickened. Last of all, while no sane person would for a moment belittle the importance of making public school buildings conform in every respect to a definite set of physical, utilitarian requirements, standardized if you choose, at the same time it is clear that such conformity does not and ought not to preclude the equally important consideration of worthy design. Architecture is not mere bricks and stone, concrete and steel beams. They are necessary concomitants to its existence, but unless their physical combination is informed by a due recognition of the claims of beauty, the outcome must needs be dead, soulless and barren. The designing of public school buildings that shall comply with both physical and aesthetic standards is no less an opportunity than a responsibility laid upon the architect.

Neither need this uninspired condition exist. The rigid but inevitable requirements set by State and local educational authorities may be, in a certain sense, a handicap to the architect. Yet the presence of an obstacle, whether in matters architectural or anything else, instead of being taken as justification for shoving through a "job," "as decently as may be,

but stupidly and without distinction," should prove a fillip to ingenuity and invention. It is by such surmounting of obstacles that architecture vindicates its vitality. Then, too, a little diplomacy on the part of the architect will smooth out many a wrinkle and circumvent difficulties in the way of satisfactory design that at first glance might appear insuperable.

To take a case in point, the office of the State Board of Education, at Albany, took exception to the form of the windows as shown in the elevations for the east and west sides of the Kensington School; round-headed windows were taboo. But square-headed windows would have spoiled the design, robbing it of all individuality and making it perfectly banal. By diplomatic negotiation the architect convinced the authorities that he would give them not only the lighting area prescribed in the stipulation for square-headed windows, but also the additional area contained in the round window-heads. The upshot of it all was that he saved his design, got the round-topped windows, with piers between them of a proper proportion and likewise satisfied all the physical demands of the occasion.

Because the architect of the Kensington School has met successfully his dual responsibility, toward physical character and toward amenities of style alike, the building is pregnant with timely significance. The design, reminiscent of Sir Christopher Wren and the Cathedral Close at Salisbury, is not only convincing and virile as a piece of composition, but the carefully studied details and the satisfying texture of the walls call for sincere commendation.

The texture of the brickwork is not due to the use of any special kind of brick, but to accepting the average bricklayer as a creature of ordinary intelligence actuated by an honest impulse to do the right thing, given the proper direction. It is the fashion to decry the indifferent attitude of the modern artisan toward his work and to lament the loss of a true spirit of craftsmanship in our degenerate times. As a matter of fact, the average workman of the present day has not a whit less innate intelligence than his predecessor of



NORTH DOOR DETAIL—KENSINGTON SCHOOL, GREAT
NECK, L. I. WESLEY SHERWOOD BESSELL, ARCHITECT.



EAST FRONT—KENSINGTON SCHOOL, GREAT NECK,
L. I. WESLEY SHERWOOD BESSELL, ARCHITECT.



KINDERGARTEN SCHOOL—KENSINGTON SCHOOL, GREAT
NECK, L. I. WESLEY SHERWOOD BESSELL, ARCHITECT.

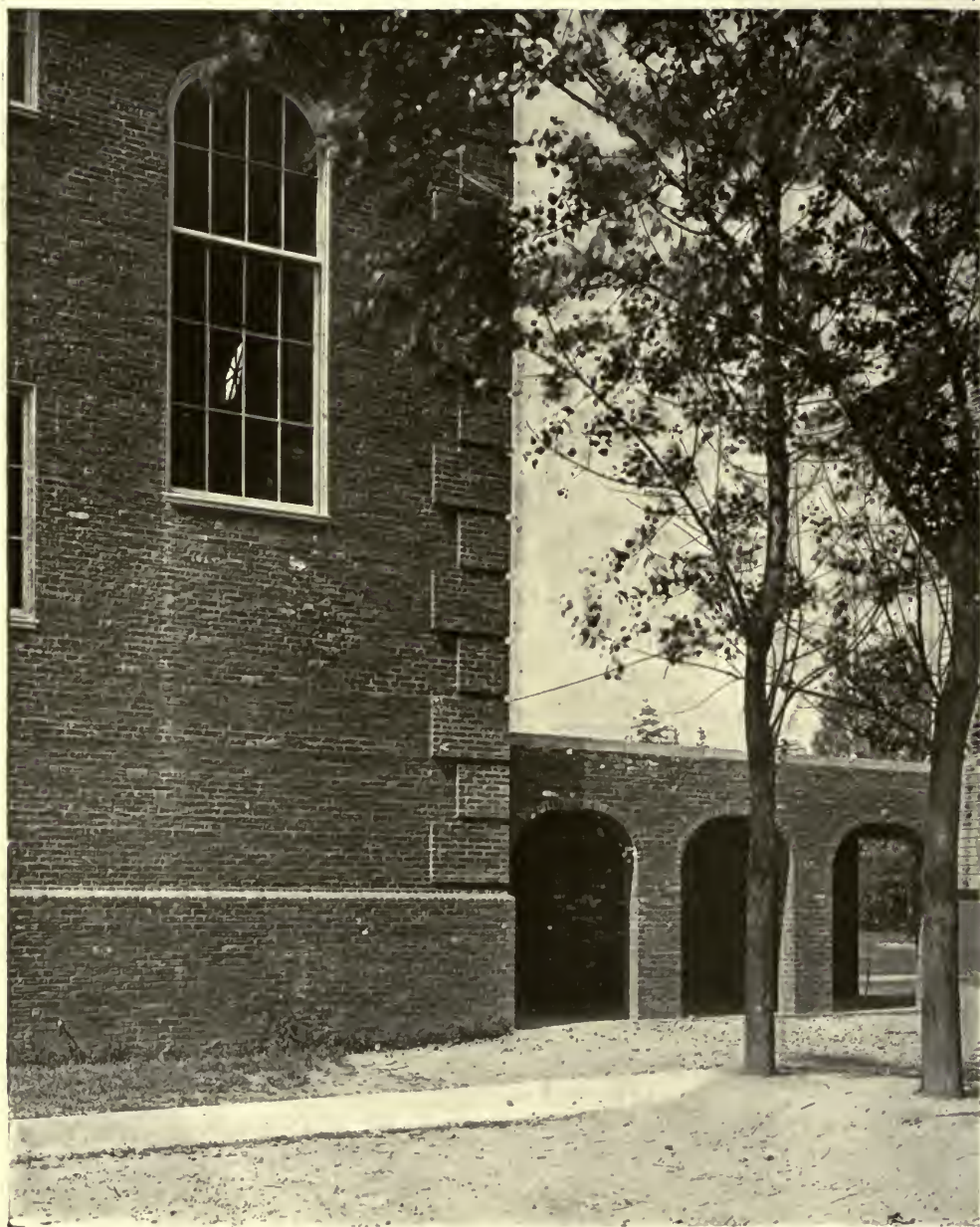


GIRLS' ENTRANCE—KENSINGTON SCHOOL, GREAT NECK, L. I.
Wesley Sherwood Bessell, Architect.

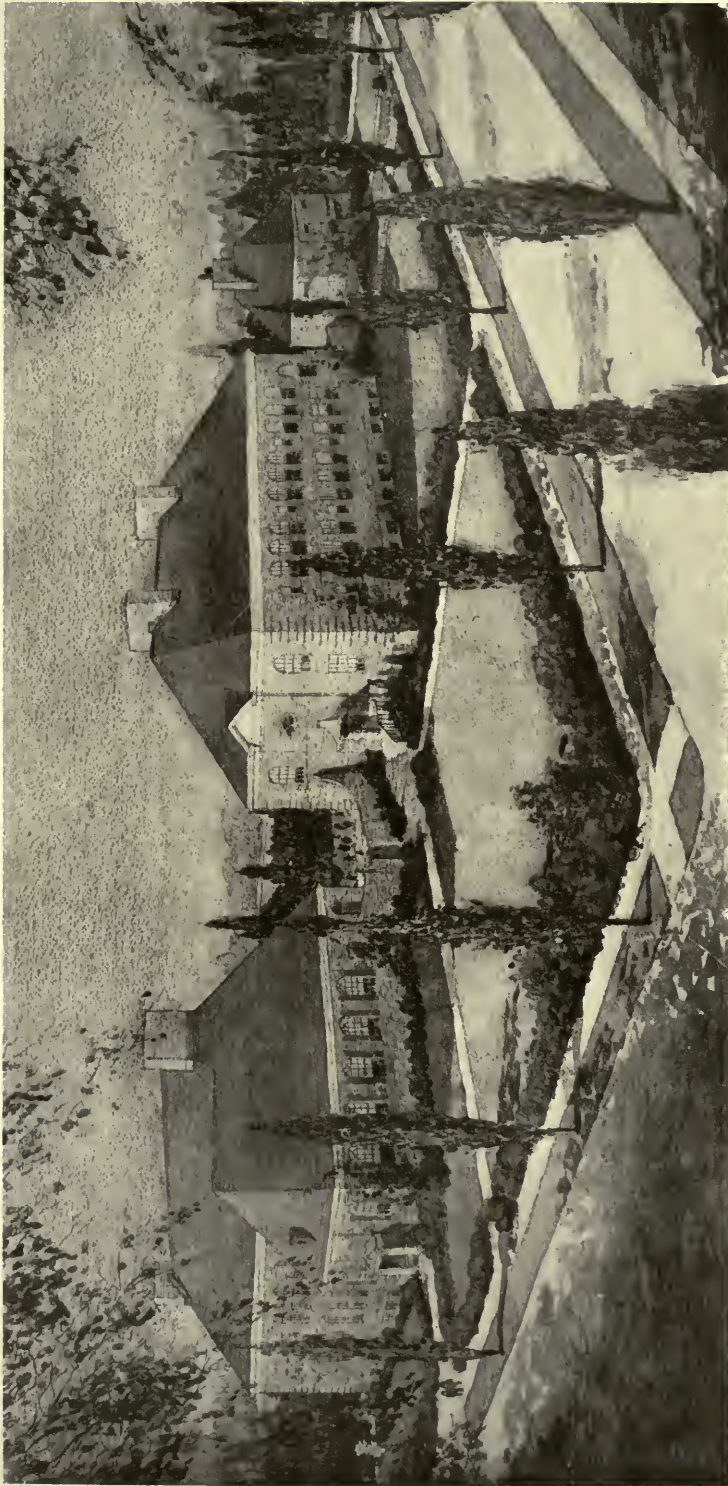
past centuries. His alleged lack of craftsmanship sense and of pride in achievement in which he differs, or is said to differ, from his predecessor, is often attributable in reality to the absence or seeming absence of interest on the part of those who employ him. This apparent absence of interest is a thing that can be overcome in the routine course of superintendence. Once the men see that their individual handiwork is a matter of interest and concern to the architect; once they are shown exactly what effect is desired and are

instructed clearly how to produce it, they generally prove responsive and an *esprit de corps* is engendered that cannot fail of useful results.

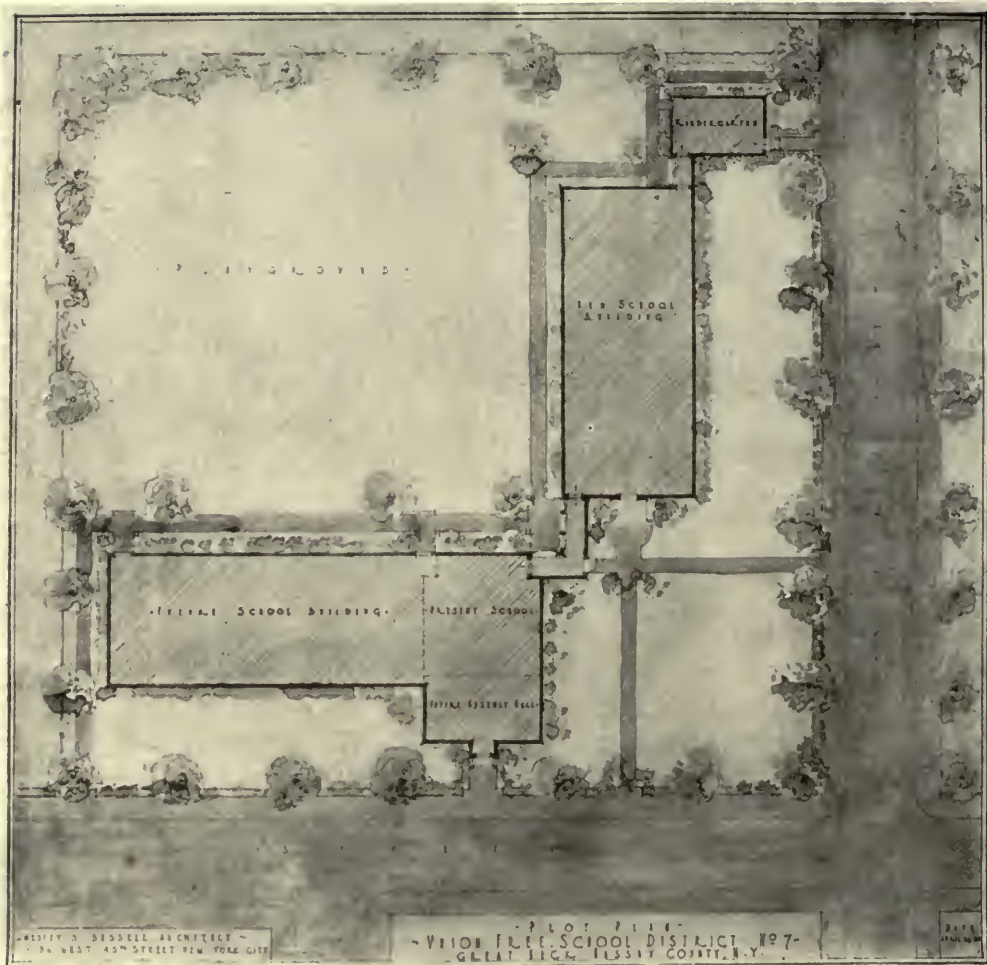
Whilst the Kensington School was a-building, Mr. Bessell followed his usual practice and made a point of personally showing the foreman bricklayer exactly what he wished done and how to do it. He also made a point of knowing each individual bricklayer from the foreman down, and tactfully created a cordial atmosphere. Some of the men, perhaps,



NORTHEAST ANGLE AND ARCADE—KENSINGTON SCHOOL, GREAT
NECK, L. I. WESLEY SHERWOOD BESSELL, ARCHITECT.



SKETCH OF PROPOSED GROUP—KENSINGTON SCHOOL, GREAT
NECK, L. I. WESLEY SHERWOOD BESSELL, ARCHITECT.



BLOCK PLAN OF GROUP—KENSINGTON SCHOOL, GREAT NECK, L. I.
Wesley Sherwood Bessell, Architect.

may not have gained an increased appreciation of the subtleties of texture, nor have felt a freshened pride in their work, but at any rate they one and all conceived a kindly feeling toward the architect, did their best to please him, and the object was achieved.

It remains to call attention to the entire group of buildings proposed for future erection to supplement the structure already completed. As the plot plan shows, there is provision for a separate kindergarten building, an assembly building, and one or two more buildings containing classrooms to take care of subse-

quent increase in the number of pupils. All of these buildings coincide in character and are designed as a coherent composition to surround two, or possibly three, sides of a quadrangle. The introduction of the collegiate scheme into public school architecture in America is a happy conception which, we believe, has not hitherto been employed. In many places it might be carried out advantageously with reference to both practical considerations and the improvement of the tone of public architecture. The aim embodied by the architect is sound in theory, and in practice can be made thoroughly engaging.





STREET FRONT — HOUSES ON RITTENHOUSE ST.,
PHILADELPHIA. STEWARDSON & PAGE, ARCHITECTS.



FRONT AND SIDE—HOUSE ON RITTENHOUSE ST.
PHILADELPHIA. STEWARDSON & PAGE, ARCHITECTS



DOOR DETAIL—HOUSE ON RITTENHOUSE STREET,
PHILADELPHIA. STEWARDSON & PAGE, ARCHITECTS.



EAST END—HOUSE OF THE PENNSYLVANIA SOCIETY
OF COLONIAL DAMES OF AMERICA, LATIMER ST.,
PHILADELPHIA. HOWELL LEWIS SHAY, ARCHITECT.



NORTH FRONT—HOUSE OF THE PENNSYLVANIA SOCIETY
OF COLONIAL - DAMES OF AMERICA, LATIMER ST.,
PHILADELPHIA. HOWELL LEWIS SHAY, ARCHITECT.



EAST AND NORTH FRONTS—CHESTNUT HILL
TRUST CO., CHESTNUT HILL, PHILADELPHIA.
ARTHUR H. BROCKIE, ARCHITECT.



DOOR DETAIL—CHESTNUT HILL TRUST
CO., CHESTNUT HILL, PHILADELPHIA.
ARTHUR H. BROCKIE, ARCHITECT.



WROUGHT IRON GRILLE — RESIDENCE OF F. W.
ROEBLING, ESQ., TRENTON, N. J. SPENCER
ROBERTS, ARCHITECT. SAMUEL YELLIN, CRAFTSMAN.



WROUGHT IRON GRILLE—RESIDENCE OF B. F. JONES, ESQ., SEWICKLEY, PA. HISS & WEEKS, ARCHITECTS. SAMUEL YELLIN, CRAFTSMAN.



DETAIL—WOODEN SCREEN, COSMOPOLITAN CLUB,
NEW YORK CITY. THOMAS H. ELLETT, ARCHITECT.



DETAIL—WOODEN SCREEN, COSMOPOLITAN CLUB,
NEW YORK CITY. THOMAS H. ELLETT, ARCHITECT.



ROOD SCREEN—ST. GREGORY'S CHURCH, HARRISON,
N. Y. WILFRID E. ANTHONY, ARCHITECT.



FOUNTAIN-CHAMERY, MARNE, FRANCE.
MEMORIAL TO QUENTIN ROOSEVELT.
PAUL PHILIPPE CRET, ARCHITECT.



PULPIT — MEDIATOR CHAPEL OF HOLY TRINITY PARISH, PHILADELPHIA. THOMAS, KIRKPATRICK AND MARTIN, ARCHITECTS.

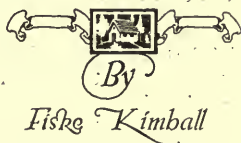


ALTAR AND REREDOS—MEDIATOR CHAPEL OF
HOLY TRINITY PARISH, PHILADELPHIA. THOMAS,
KIRKPATRICK AND MARTIN, ARCHITECTS.



OLD HOUSE AT ALGONAC

The OLD HOUSES of MICHIGAN



IT is little suspected that states beyond the Alleghenies and the Ohio contain old mansions of great dignity and beauty. "Some specimen of the Dark Ages in the depths of the Middle West" is what the jury of an American scholarship competition feared, when it was proposed to have each contestant submit drawings of a building in his own locality. Just how horrible many such specimens really are is revealed by our own view of the beautiful old house at Algonac, built about 1850.

Only for the South has it been discovered hitherto that the settlements of the first half of the nineteenth century have buildings comparable in artistic value to those of the original seaboard

colonies. Even natives of the old Northwest Territory themselves have scarcely opened their eyes to the heritage of fine early dwellings which they possess, and to the precious local traditions which these embody. Along the century-old National Highway through Ohio, in backwaters of Indiana, even in Wisconsin, are many taverns and houses which arrest the eye by their sympathetic handling of materials and their just proportions. None of these regions, however, compares with Michigan in its wealth of interesting buildings, very remarkable for unity and persistence of classic style.

The belief has been widespread that the passing of the Colonial and post-Colonial styles marked the end of healthy



JUDGE SAMUEL DEXTER HOUSE, DEXTER. THE DORIC TEMPLE PORTICO, FULL SIZE COLUMNS IN WIDTH.

development of traditional art as an outgrowth of contemporary culture, and that the classic revival which succeeded it was an exotic with no firm roots in American civilization. It is overlooked that the Revolutionary patriots—the “Cincinnati”—persistently, sophomorically identified themselves with the heroes of the Roman republic, and that the leaders of thought in the thirties had a consciousness of solidarity with ancient Greece which touched every department of life. At the time of the war of Greek independence, as Mr. John Bassett Moore has pointed out, American sympathy was so great that a gentleman from western New York declared he could furnish, from his sparsely settled region, “five hundred men six feet high, with sinewy arms and case-hardened constitutions, bold spirits and daring adventurers who would travel upon a bushel of corn and a gallon of whiskey per man from the far end of the earth to Constantinople.”

The same philhellenism prevailed in intellectual and artistic matters. Joel Barlow dreamed of a national epic. The initiative of amateurs and laymen, such as Thomas Jefferson and Nicholas Biddle, established the form of the classic temple—deep and narrow, with columns and pediment at the front—as a single unconditional ideal for all buildings. There is a rich variety of examples to our hand. The Virginia Capitol at Richmond, designed by Jefferson in 1785, was a model of the *Maison Carrée*; the United States Bank in Philadelphia, built in 1819 to 1826, a model of the Parthenon; the Connecticut Capitol at New Haven, 1829, a model of the Theseum; the French chapel in New York, a model of the Temple of the Wingless Victory. Dwellings, even, followed the same examples. Jefferson, in 1819 to 1825, housed the professors at the University of Virginia in little temples, and Biddle showed his devotion to the classic ideal



DOORWAY—DEXTER HOUSE.



SMITH HOUSE, GRASS LAKE. NORMAL TYPE WITH TWO WINGS.

by building a wing to his residence, in 1834, on the pattern of the Theseum, peristyle and all.

When the wave of Eastern emigration of the thirties swept out along the newly opened Erie canal and across the lakes, it brought with it this ruling ideal. In Michigan, Greek enthusiasm was particularly strong. The names of towns—Ypsilanti and Byron, Ionia and Scio—perpetuate famous personalities and places in the Greek struggle for freedom. Judge Woodward in his first sketch for the organization of the state university, preferred for it a Greek title, the *Catholepistemiad*! When the institution came actually into being, its several departments were housed in as many porticoed temples of the Muses. Little after the log cabins of the first settlers, side by side with them in many instances, rose ambitious dwellings in the form of the temple. Along the old stage roads of 1840 from Detroit—the Chicago Road through Saline, Tecumseh and Coldwater, the Grand River Road to Lansing, the Territorial Road through Ypsilanti, Ann

Arbor, Jackson and Marshall to St. Joseph—they still stand with their simple lines and classic detail as memorials of a bygone era, almost of a vanished civilization.

It was the men of solidity and culture who took the lead in building fine houses, the governors, the judges, such as Samuel Dexter, whose patriarchal mansion overlooking the town which bears his name is perhaps the amplest and most imposing of all the houses in the state. In the absence of professional architects, but with the aid of popular handbooks of the Greek orders, and of carpenters and masons who had learned their trades in New England and New York, they built in the wilderness houses for which there was no need to blush before their most cultivated guests from the East.

The house of the period, with few exceptions, had its main mass in the proportions of a temple: rectangular, deep and narrow, its gable to the street; in contrast with the Colonial house which turned its broad side, with level eaves, to the front. Sometimes this main block



JUDGE WILSON HOUSE, ANN ARBOR. PUREST IN GREEK DETAIL OF THE MICHIGAN HOUSES.

alone constituted the entire house. More frequently there was a subordinate wing on one side, or on both. Ordinarily such a wing was also gabled, its ridge at right angles to the main house, and was fronted by a narrow, pillared porch with horizontal cornice. Where means permitted, *two hundred thirty-one*

the house proper was fronted by a portico of its full width, most commonly with a single order rising through the full heights, as in the temple, although sometimes with an order but one story in height, or two orders superposed.

In the most ambitious houses the



HOUSE ON THE ROCHESTER-PONTIAC ROAD. NORMAL TYPE IN BRICK.



THE BENNETT (KEMPF) HOUSE, ANN ARBOR. THE TEMPLE IN VERNACULAR. THE ANTA CAPITALS ARE PROFILED ENTIRELY WITH PLAIN CHAMFERS AND FILLETS.

two hundred thirty-two



SMITH HOUSE, GRASS LAKE. DETAIL OF CENTRAL PORTICO AND DOORWAY.
two hundred thirty-three



HOUSE ON THE RIVER ROAD BETWEEN ANN ARBOR AND YPSILANTI. GLACIAL PEBBLES
IN LEVEL COURSES AND HERRING-BONE PATTERN.

Greek orders were reproduced with great literalness from the admirable plates of the handbooks, with circular fluted columns and finely profiled bases and capitals. Nowhere were proportions and details followed more closely than in the house of Judge Robert S. Wilson at Ann Arbor, seat of the University, who purchased the lot in 1836. Here there are four tall columns of the Ionic order rising through two stories. There are no wings—it is the “Temple of the Wingless Victory”. In the Village Farm at Grass Lake, owned by Mr. John S. Fields of Chicago, the main columns are

more slender and a smaller order, likewise Ionic, fronts one-story wings on either side. In the Dexter house the great order is a slender Doric, unique in Michigan in being six columns wide, with subordinate Doric porches running back along both sides of the main mass. Mrs. Julia Dexter Stannard writes. “It was built between 1840 and 1843. The plans were made by my father and mother, modelled somewhat after my father’s old home on Beacon Street, Boston.”

Circular columns of correct detail were sometimes, but rarely, used in smaller dwellings. The finest example, before

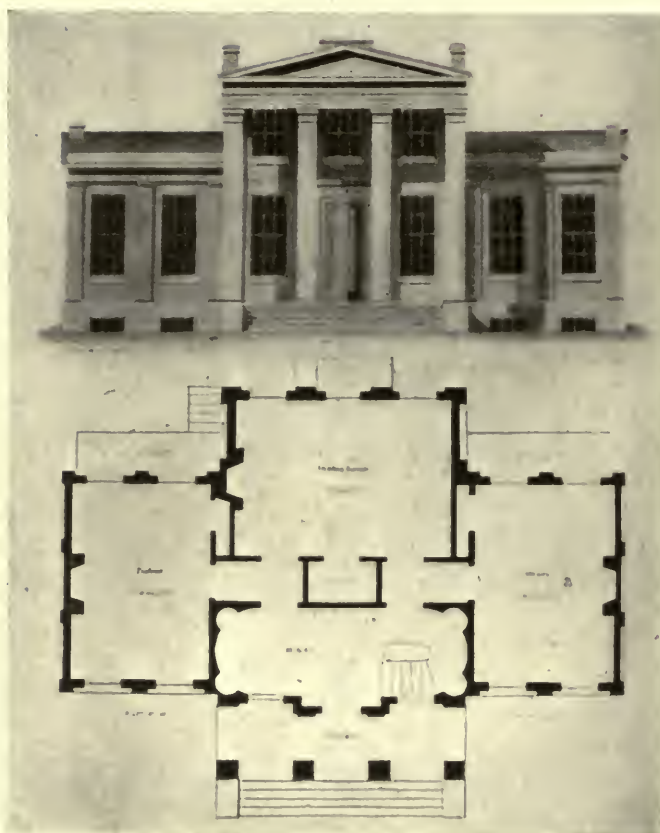
two hundred thirty-four



JOHNSON HOUSE, BATTLE CREEK. THE TEMPLE SCHEME IN SEAM-FACED RUBBLE.

its remodelling, was the one story central portico of the little house on the Pontiac Road in Ann Arbor built by Thompson Sinclair, who came to the town in 1840,
two hundred thirty-five

married in 1843 and sold the house in 1845. In the Chapel house, eight miles west of Jackson, on the Territorial Road, with its stone lintel inscribed "Caleb M.



FRONTISPIECE OF MINARD LAFEVER'S "THE MODERN BUILDERS' GUIDE," 1833. THE PROTOTYPE OF THE SMITH HOUSE AT GRASS LAKE.

house at Grass Lake erected for Sidney Smith in 1840. His son, who still owns and occupies it, testifies to the date as well as the names of the workmen: Silas Winchester, head carpenter, Levi Babbitt, mason. In number and position its supports correspond exactly with those of the Village Farm close by, although wing is multiplied beyond wing as in no other house. A house just west of Lansing on the Grand River Road, likewise with symmetrical wings, has the main portico of square antae superposed in two stories; in many less ambitious examples it is completely omitted, the porches running only along the wings. This scheme, with antae and but a single wing, is indeed the commonest of all.

Other liberties were taken with the classical forms as the Greek style passed, like the Colonial

Chapel, June 1850," the wings only were fronted, until 1918, with porches of circular Doric columns.

Much more often, at just the same period, the order was modified to suit lesser means and lesser pretensions. Square piers were substituted for the columns, the anta capital was used to crown them, with results of surprising artistic merit. The device was no mere makeshift of the frontier: the frontispiece of Minard Lafever's "Modern Builder's Guide," published in 1833, shows the metamorphosis already accomplished, and houses illustrating it may be found within a few miles of New York City,—for instance one at Rahway. It can scarcely be doubted that this very plate of Lafever was in the hands of the builders of the

before it, into vernacular use. In some cases the proportions were radically modified, with results nowhere more piquant than in the little house in Ann Arbor occupied in the middle of the last century by H. D. Bennett, Secretary of the University. Instead of two full stories below the cornice, the house has its upper story in the roof, with small "frieze windows"—all too near the floor—screened by delicate iron gratings designed on the motive of the Greek anthemion. Sometimes, again, the antae were made more slender than the classic proportion, as in the house at Algonac. Elsewhere it was the horizontal divisions of the temple which were varied. It was not always assumed that there must be an even number of piers and an odd number of openings to the gabled façade.



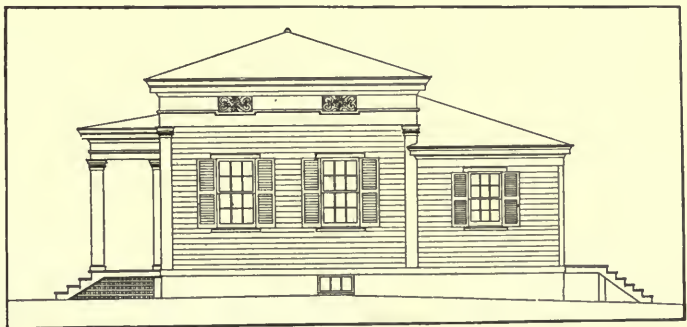
FRONT ELEVATION—WEBSTER-BREAKEY HOUSE, ANN ARBOR, MICH.

Since the main block generally had a width of but one room beside the hallway, the main door was at one side of the front, and there could be a portico of two bays, with three antae—one in the centre—as in small houses at Dexter and elsewhere. These reverted, quite unconsciously, to the scheme of the primitive Greek temple. Finally, in many minor houses, there was a total absence of any curved mouldings, the subtle effects of Greek profiles being approximated remarkably well by ingenious use of mere square fillets and sloping chamfers. Thus the classic revival by no means meant death to local and individual freedom.

Further possibilities for variety, even within the temple type, lay in the choice of materials, several of which were often available in a single locality. Wood was the most common but by no means universal. Brick was frequently used, either by itself or covered with warm stucco. Stone was employed in many different ways, conforming partly to local conditions. Thus small rounded glacial stone was laid up in thick mortar, like brick, and also in herringbone pattern—the *opus spicatum* of the Romans, if the builders but knew it. This is a local manner of work found also in central New York, and repeated

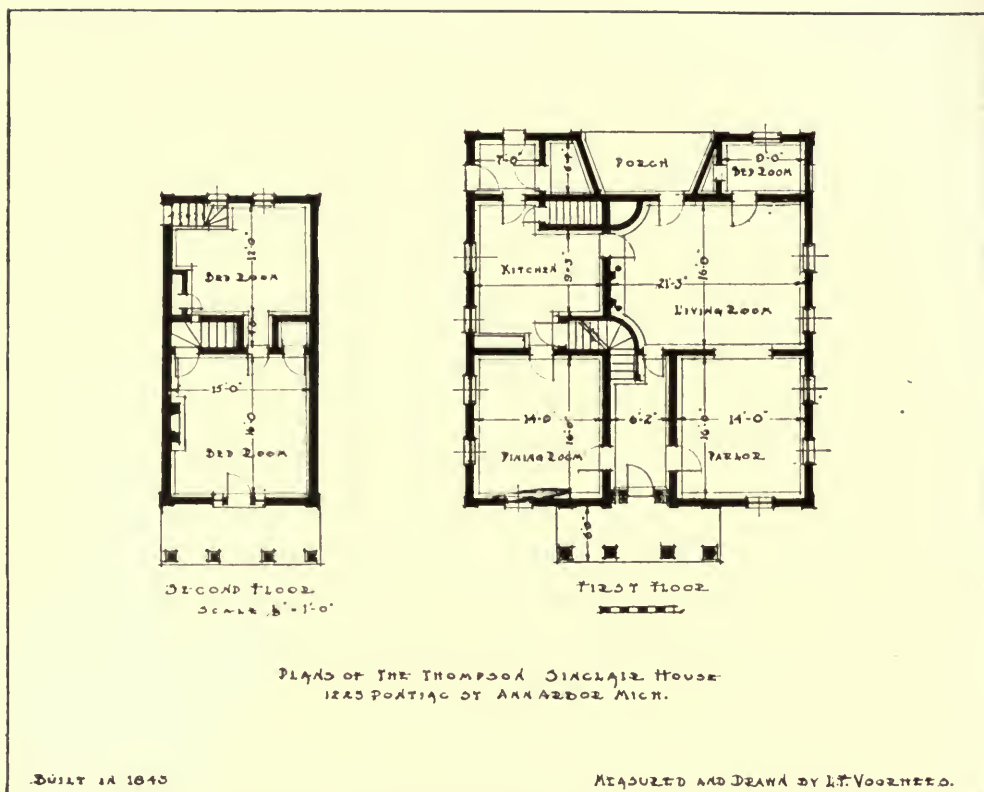
here like so many other traits of the region from which the settlers came. Just east of Battle Creek a quarry of stratified ledge stone was responsible for some fine rubble walls. The Johnson house there, built in 1840 by a mason named Lawson, has little to lose in comparison with the finest work of the kind in Pennsylvania. In the Chapel house near Jackson, regular coursed ashlar was ambitiously adopted, coupled with some crude attempts at decorative relief sculpture. With such a range of materials, even when used merely in ringing the changes on but one basic theme, the number of permutations was infinite. As a matter of fact, among all the similar houses, no two are alike.

Aside from the scheme of the temple, with its longitudinal axis, classicists the world over preferred a centrally balanced arrangement about a vertical axis. Such a scheme—most highly developed, with a dome, in Palladio's Villa Rotunda—found its homelier expression in America in the octagonal house. The vogue of this form here, goes back, like that of the temple, to the initiative of Jefferson, who, in his little known plantation of "Poplar Forest," realized, during the years following 1806, the paper projects of Italian and English academic theorists. Few old Michigan towns failed to contain one or more houses which were octagonal. Ann Arbor had one until a few years ago, built by Alexander Winchell, professor of geology from 1854 to 1872,



SIDE ELEVATION—WEBSTER-BREAKEY HOUSE
ANN ARBOR, MICH.

From measured drawing by John B. Jewell. Note the "contrast between its grave regularity and the fantastic wooden grilles of its frieze windows."



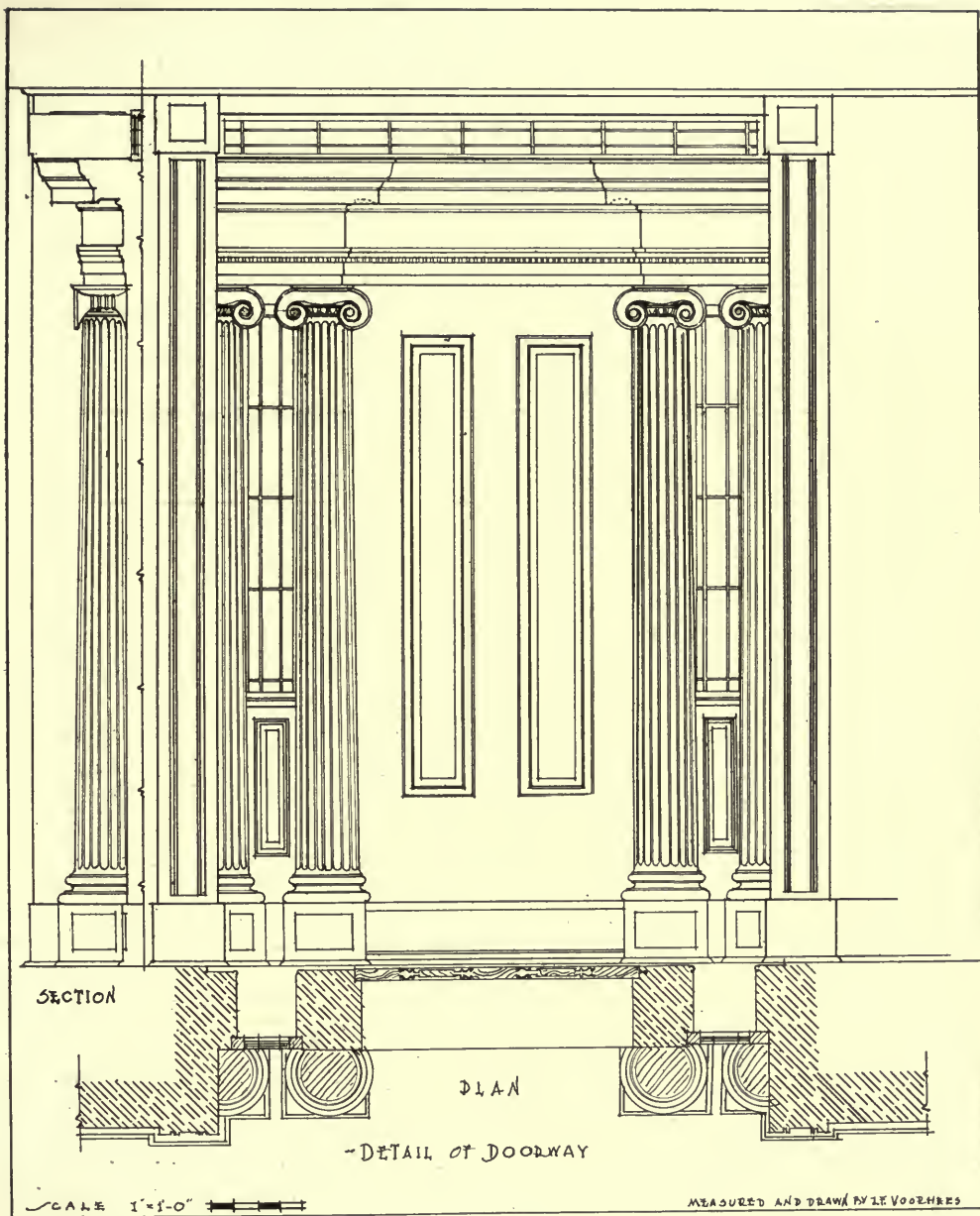
FLOOR PLANS—THE THOMPSON SINCLAIR HOUSE, ANN ARBOR, MICH.

and others still stand, as in Ypsilanti, Concord, and Otsego—even on obscure outlying farms. Strange as it seems, the interiors of many such houses, so far from being inconvenient, were made to offer novel facilities by ingenious planning, which also disguised almost completely the unusual shape of the exterior. In crude examples of the fashion there was a single central chimney with rooms about it, arranged very like so many pieces of pie. Some of the best octagonal houses have suffered destruction or remodelling, but enough remain to show the variety which was given them also: by an exterior peristyle in the lower or in the upper story, by recessed and projecting porticoes. The finest example still standing would seem to be the Hamilton house in St. Joseph, with its tall pillars all about.

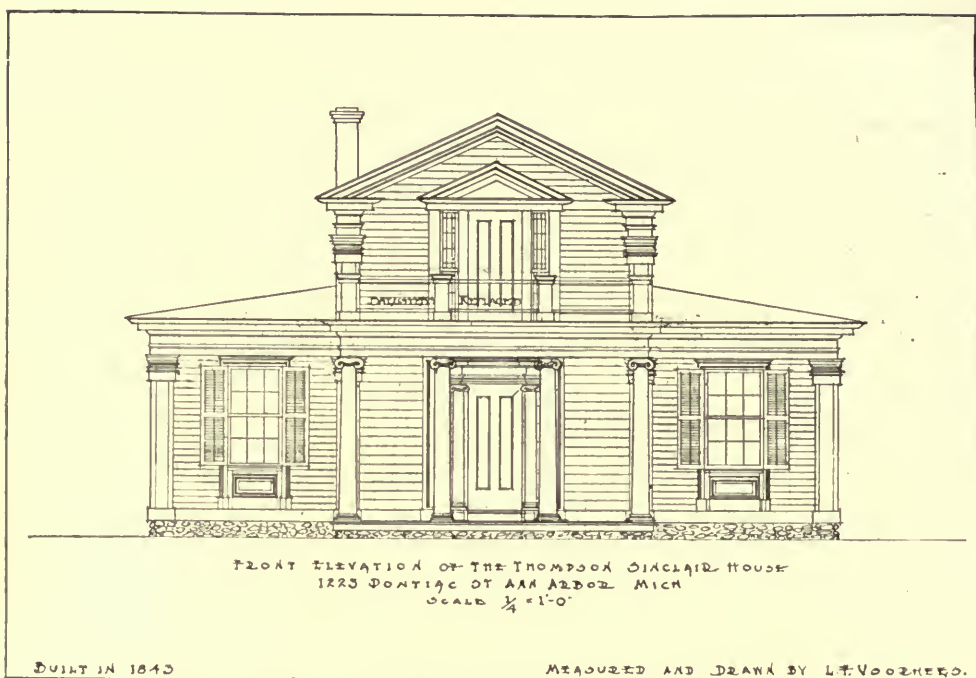
Sometimes less pretentious schemes than the temple and the octagon were fol-

lowed. Instead of the imposing gable to the street, the eaves were occasionally turned that way, as in colonial days. Thus one got a form like a glorified wing of the ordinary temple-mansion, for example the very homelike and intimate house at Otsego. Again, the roof slopes gently from all four directions. This was specially common in the region about the head of Lake St. Clair. The one story house near Mt. Clemens, with its recessed portico and restful lines, might well be a lesson in repose to many a modern "bungalow". The little Webster-Breakey house at Ann Arbor—so small that it has been twice moved—gained a special flavor from the contrast between its grave regularity and the fantastic wooden grilles of its frieze windows.

The detail of the doors and windows lacks the delicacy of the Colonial or Adam proportions and carving, and no doubt a consideration of its harmony with the



DETAIL OF DOORWAY—THE THOMPSON
SINCLAIR HOUSE, ANN ARBOR, MICH., 1843.



FRONT ELEVATIONS—THE THOMPSON SINCLAIR HOUSE, ANN ARBOR, MICH., 1843.

whole is necessary for appreciation of such amplitude and severity as that of the great doorway, *in antis*, of the Dexter house. In the McCollum house, on the other hand, the windows have moulded panels below, the doorway has a rich treatment of Ionic colonnettes of great purity of form, with leaded side-lights and transom recalling the doorways of lower New York.

In the interior, monumental scale and detail are retained. The great rooms of the Dexter house gain much impressiveness from their height, their heavily moulded plaster cornices, and their vast doorways. In minor houses the mantels, on a pair of little Doric columns or antae, were almost the only ornamental features. Pride was taken in painting woodwork in a manner we condemn unseen—graining! Those who suppose it an abomination should remember that it was much admired in Colonial days, and then should see the rooms of the Smith house at Grass Lake.

The classic types and details in Michigan persisted to an astonishingly late period. The St. Clair Bean house

near Concord was actually built as late as 1857. There was no other architect than the owner and the builders, Houghton Butler and Son. In elaboration of porticoes it is one of the most interesting of all the temple-dwellings, whether viewed from front or rear. Its date is betrayed only by the wave motive of the parapet and the lank scrolls of the gable—innocent early products of the bandsaw. It was not until the eve of the Civil War that classicism finally succumbed to the Gothic revival. Even then the types of massing which classicism had established lingered on long after Greek detail was abandoned.

Adherence to local tradition in the design of modern buildings is a principle brilliantly exemplified in such revivals as the Harvard brick and the ledge-stone architecture of Pennsylvania. So little has it been sometimes understood, however, that carloads of the Pennsylvania stone have been transported to Michigan to erect a house alien to the region. The old colonies and the newer states have each their own artistic heritage. Artists and public may enter on it if they will.

The ARCHITECT AS A FACTOR IN THE CONSTRUCTION BUSINESS -

BY

THOMAS S. HOLDEN, *Statistician*
The F. W. Dodge Company

THE Statistical Department of the F. W. Dodge Company has compiled some interesting figures that define or measure the importance of the architectural profession as a business factor in construction. The results of the compilation are shown in the accompanying chart and tables, which require but little explanation. The territory covered by the figures includes about three-fourths of the total construction activity of the country.

During the first six months of this year construction was started in the twenty-seven Northeastern States on 52,447 projects, amounting to \$1,690,984,200. Of these projects 21,169, amounting to \$1,075,466,000, were planned by architects. Thus, architects planned 40.4 per cent. of the total number of projects, which amounted to 63.6 per cent. of the total cost. These percentages are slightly higher than those of other recent years.

The classification "Public Works and Utilities" is largely made up of engineering projects, such as streets, roads, bridges and sewers. Aside from this classification, 43.9 per cent. of the projects were planned by architects, amounting to 74.9 per cent. of the cost.

The tables show, in addition, the relation of the architects to the contracting business. Of the 21,169 projects planned by architects, 14,685, or about two-thirds, were built by general contractors. Of the \$1,075,466,000 worth of construction planned by architects, \$809,736,800, or four-fifths, was built by general contractors.

A comparison of the average cost per project for each of the groups shown in TABLE I is of interest. The average cost of all projects reported is \$32,223; of projects planned by architects and

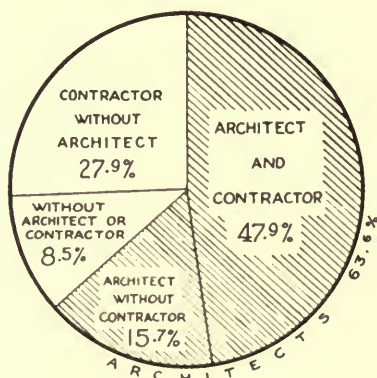
built by contractors, \$55,140; of projects planned by architects and built without a general contractor, \$49,823; of all projects planned by architects, \$50,804. The average cost of projects planned without architects and built by general contractors is \$23,049; of projects built without architects or general contractors, \$13,285; of all projects planned without architects, \$19,679. The average value of the architect-planned project is two-and-half times the value of the average project built without an architect.

In the six districts into which the Dodge Company's territory is divided, there are variations in the per capita volume of construction and in the percentage of work planned by architects, which are worth noting.

In the New England States, the per capita construction for the first half of 1922 was \$23.67; 61.3 per cent. of the total work was planned by architects. In New York State and Northern New Jersey, where the per capita construction was \$37.37, work planned by architects was 78.6 per cent. of the total. In the Middle Atlantic States (Eastern Pennsylvania, Southern New Jersey, Delaware, Maryland, District of Columbia, Virginia and the Carolinas) the per capita construction was \$17.51 and the percentage planned by architects was 53.5. In the Pittsburgh District (Western Pennsylvania, West Virginia, Ohio, Kentucky and Tennessee) the per capita construction was \$16.92, the percentage planned by architects, 56.0. In the Central West (Illinois, Indiana, Iowa, Wisconsin, Southern Michigan, Missouri and Eastern Kansas) the per capita construction, \$21.14, the percentage planned by architects 60.3. In the Northwest (Minnesota, the Dakotas and Northern Michigan) the per capita construction, \$11.86,

Percentage of Construction Planned by Architects First Six Months 1922

(27 NORTHEASTERN STATES)



TOTAL CONSTRUCTION

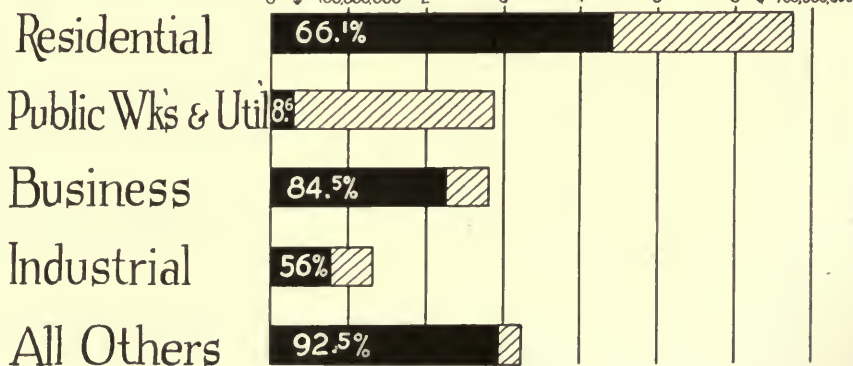
\$ 1,690,984,200

PLANNED by ARCHITECTS

\$ 1,075,466,000

Analysis of Construction by Classes

Black Areas Show Percentage
Planned by Architects



FIGURES TABULATED FROM DODGE CONSTRUCTION REPORTS
© 1922 THE ARCHITECTURAL RECORD

and the percentage planned by architects, 50.1. In the entire territory, where the percentage planned by architects was 63.6, the per capita construction was \$22.08.

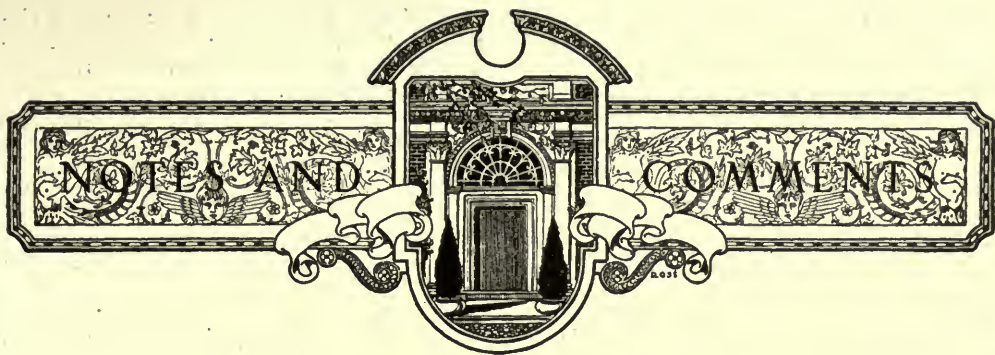
The Dodge Company has also just made an enumeration of the architects in its various districts. It shows for New England States 642 architectural firms, or 1 for each 11,526 of population; in New York State and Northern New Jersey, 1,925 architects, or 1 per 6,679 of population; in the Middle Atlantic States, 832 architects, or 1 for each 17,557 of

population; in the Pittsburgh District, 932, or 1 architect per 16,553 of population; in the Central West, 2,112, or 1 per 10,547; in the Northwest, 210 architects, or 1 per 19,044. The total number of architects in the entire territory under consideration is 6,653, or 1 architectural firm per 11,509 of population.

If detailed study is made of the figures given in the attached tables, it is well to bear in mind that from 50 to 60 per cent. of the total construction cost represents the material cost, the remainder being the labor cost of construction.



PORCH OF PARISH CHURCH OF BENFLEET,
ESSEX, ENGLAND.



**A Résumé of
Viollet le Duc's
Observations and
Deductions on
Mediaeval
Architectural
Polychromy**

As data are gathered concerning the manner in which the color problem in architecture was handled in by-gone days, astonishment increases with acquaintance, at the extent to which the tested method ruled practice: this applies to the Gothic expression as much as it does to the Greek. Our predecessors valued safety in procedure as highly as some of our contemporaries prize the most volatile impulses, as the most desirable means of producing artistic results. The unanimity with which the standard solution was adopted is accounted for, in the first place, by the spirit of the age, which regarded art expression of greater importance than the revelation of the individual's temperament. There was a peculiar vitality given to shop-practice in the middle ages; it possessed a human impulse which that deadly term does not convey in its current significance. When we bear in mind the intimate contact of master and apprentice and the prestige which the social order must have imparted to the former in the consideration of the latter, there is no occasion to feel surprised that the younger generations should have accepted artistic principles in practice, the value of which they saw demonstrated daily in the work of the master. Any addition made to technical or artistic experience was regarded as a valuable possession, to be transmitted to their successors in the craft for perpetuation; a vivid contrast to the modern attitude, which is generally most concerned with patent law protection.

It is much to be regretted that Viollet le Duc has not left a more complete record of the extensive investigations which he made of those color remains still discernible upon many famous Gothic structures in his day, which have been since obliterated through the pollution of city atmospheres.

Though his notes upon Gothic polychromy are very sparse, they give a very accurate impression of the extent to which custom controlled the color treatment of ornamentation and the arrangement of colors in groups, during the XII, XIII and XIV centuries. The general principles which determined the architectural location of colored decoration parallels those adopted by the Greeks, in that ornamental items were regarded as appropriate for color effect, and the main structural features as unfitting. The principal difference in general plan of location was accounted for by those contrasts in structural design which exist between Greek and Gothic buildings; the Greeks concentrated color upon the upper part of the building, which the Gothic designers left comparatively free of color, though the roof was elaborately decorated: these differences however, do not imply opposite views on the part of Greeks and the mediaeval workers; on the contrary, they demonstrate the wide range of adaptability of the basic principle of color location in its relation to the structural properties of architectural items.

Viollet le Duc found numerous remains of coloring of the façades of the cathedrals of Nôtre Dame, Rheims, Amiens and others, in sufficient completeness to enable him to formulate a definite idea of their original condition: he was further able to observe that the quality of color effect varied by district, and that a decided change occurred during the XIII century, when the layman superseded the clergy as designer.

The Gothic palette was divided into two classes of color: the simple and the composite. The simple colors were the primaries according to the obsolete classification; yellow, red, and blue. The composite included certain tones obtained by the mixture of the three simple colors, such as green, purple, orange, grey, etc. Certain color combinations prevailed in ornamental treatment; these form three typical

groups. The first typical coloring consisted of yellow and red, with a small proportion of black and white. The second, of red, yellow and blue, with their compound tones, green, purple and orange. The third was composed as the second with the difference that gold takes the place of white as the highest toned color.

A systematic procedure apparently dictated the grouping of color upon ornamentation. The details of an ornamental composition were, according to Viollet le Duc, considered on the basis of their relative decorative importance and their respective areas: the colors, in the order of their radiant properties. A systematic relationship was established between ornamental values, areas, and color quality. He reconstructs a system whereby the values of the simple colors were designated by ciphers as follows: yellow, 1; red, 2; blue, 3. When red was mixed with yellow to produce an orange, the number designating that tone was 3, the product of yellow 1, plus red 2. Similarly when red was mixed with blue to produce a purple, its number was 5, the product of red 2, plus blue 3. The arrangement of colors upon ornamentation was determined on the following plan: in many of the XIII century ornamentations, colored principally in red and yellow, the areas of motif to field is approximately 1 to 2: the color of the lesser degree of radiance, yellow, is chosen for the larger area, and the red for the smaller, reversing their numerical order in relation to the size of the spaces to be covered. By thorough investigation of a series of examples, Viollet le Duc found this system of apportionment to have been consistently followed for over two centuries. To summarize, if one detail were five times the area of another, yellow (1) might be used on the larger, and purple (5) on the smaller. In his analysis of the data which he evidently accumulated in considerable quantity, and with great earnestness, Viollet le Duc made another observation which is of considerable interest, as evidence of the strong inclination of the mediaeval decorator of buildings for systematic procedure in polychromy. In addition to the order in which ornamental values, areas, and color qualities were considered, he discovered that colors were arranged upon the items of the decorative motif in a certain sequence: and that, following the order of ornamental importance of those items, the colors were taken alternately from the simple and the composite groups. Pursuing this observation, he found that the detail of major importance was invariably a simple color: in no instance did he find a composite heading the list: and, in no color scheme was the list ter-

minated with a simple color for the least significant detail. The color sequence most frequently noted was arranged as follows:

1. Blue (simple).
2. Green (or purple). (Composite.)
3. Vermilion (simple).
4. Purple (or green). (Composite.)
5. Yellow: followed by rose, light blue, turquoise-green, straw-color, and shades of light grey or tones of white.

The Gothic polychromists in their creation of effect reveal an intimate knowledge of those phenomena peculiar to brilliant color, or contrasting tone values, which produce certain optical illusions in their decorative application. They utilized these with excellent judgment and foresight, deliberately taking advantage of, and compensating for, those illusions which affect the apparent dimension of a detail when colored with tints of varying intensities, or when placed upon backgrounds of contrasting tone values. They took evident pleasure in playing tricks with the apparent size of solids, which they widened or narrowed at will by the character of the ornamentation with which they covered them. They discovered that the sense of distance was subject in a great measure to the manipulation of color quality, tone values, and ornamental scale. Effects created were not the result of hazard, but of deliberate calculation, based upon an accurate observation of all factors involved, estimated with a precision which might almost be termed scientific were it not so essentially artistic.

As the capacity for artistic expression became more fluent with the fuller development of the Gothic manner, and the taste for sumptuous effect more fastidious, the increased use of gold is very noticeable. They appreciated to the fullest extent its great value as a harmonizing element in ornamentation combined with brilliant and contrasting colors. The manner in which they utilized their observation of the peculiar decorative properties of gold in ornamentation, is a remarkable demonstration of their deep knowledge of inherent artistic possibilities existing in materials used for the creation of effect. In the color treatment of the vaulting, gold played a very important and useful part. Blue was adopted as the conventional color for the vaulting or ceilings, either because of its relation to the color of the sky, or because it gave an impression of height which could not be equalled with any other color. The then available pigment was crude in its brilliancy, to such an extent that it must have been difficult to establish a harmonious color relation between so large a mass of aggressively bright pigment, and colors of lesser radiance massed in much smaller proportions through

the other parts of the building. To neutralize this, and to establish the requisite tonal relationship, delicate red and green patterns were scattered over the blue field outlined with gold; the gold incorporated the red and green with the blue, thereby modifying the aggressiveness of that color; this objection was further developed by the sprinkling of gold diapers over the blue ground. In course of time, as the Gothic color sense became more acute, they modified the crude blue by introducing a light yellow in the pigment, giving it a greenish cast, thus introducing a common color factor of yellow between the ochre red, green and blue. This method of establishing harmonious color relations by means of the common color factor was much resorted to by the Gothic colorists throughout the greater part of the three centuries. Other color conventions prevailed, in connection with the combination of certain colors: when yellow was used with green, the yellow was of an orange cast; if a pure yellow was desired for a specific effect, the yellow was high in tone and the green low. All purple found on ancient buildings inclined to the madder, never to the violet.

They developed a certain technique in outlining ornamentation, the description of which must be deferred to a future number; these methods assumed an importance in the development of effects, equal to that which outline technique assumed in the Greek architectural polychromy.

LEON V. SOLON.

**Some of
W. R. Lethaby's
Essays
Reprinted**

There is a distinct flavor of Chesterton in Professor Lethaby's writings. He often seems on the point of achieving the famous inverted paradox, and on almost every page some keen, incisive, flashing phrase lights up his theme from an unexpected angle. This little group of collected essays and addresses* is a mine of clear, stimulating thought on things architectural, the art of living, housing problems, the arts and handicrafts and other pertinent matters. There is an astonishing array of workable ideas which in action would contribute much to definite form in living. As if to emphasize the importance of arrangement and order in our lives, and the fundamental relation of all art to living, Professor Lethaby puts first the essay entitled "Architecture as Form

in Civilization"—striking the keynote of those that follow: "Towns and Civilization," he says, "are two words for nearly one thing: the City is the manifestation of the spirit of its population and the larger body it builds for its soul." Our cities and our buildings are mirrors which reflect our conscious ideas of beauty and of art. Since architecture may be called the totality of all the arts, it most truthfully reflects. It therefore is not merely a visible accumulation of structural ideas, a matter of appearances, but a matter of metaphysics.

Professor Lethaby is entirely right in dwelling so persistently on the thought that art, and more specifically the art of architecture, is one of the most sustaining aspects of human existence. The right kind of architecture in a community—buildings which are suited to their function in the community—are an inspiration to the people. Without inspiration people cease to love and without love they cease to live.

We do not have to be urged to admit that our cities with their unbelievable conditions of unkemptness and lack of order, should be and could be changed into places of order and cleanliness where a reasonable measure of happiness would be within the reach of everyone. (After all, what is living but the science of being happy?) What is needed to change this picture of ugliness is action—the action that follows a change of concept of ideas, whose manifestation can only be cities of beauty and order where the affairs of men move with rhythm; where work is justly productive; where it is art. Such is the "city that lieth four-square"—where the impossible is brought to fulfillment.

Elsewhere we read: "A town, then, is a work of art according to its quality as a dwelling-place for men. Its art is its service and stimulus to life." This was true of the beginning of art in primitive life, particularly with regard to Music, which was not only a social diversion but was used deliberately as a stimulus to nervous energy; such as, for example, on festal celebrations and before battles. Every act of life was a ceremony, with music or some art an inseparable part of it. Confucius said: "If you would know a people rightly, examine into the nature of its music."

Art, if it is to become a vibrant, national attribute, moving us to sincere and noble expression, cannot remain "fine" in the sense that it is unattainable by large numbers. "Art," says Professor Lethaby, "is not only a question of high genius; that

*"Form in Civilization," by W. R. Lethaby. Oxford University Press, London, 1922.

is only the crest of a great wave rising from gifted peoples, and without the flood of common art you cannot have the crest of genius. This common art, which is the thing of importance (as the other will form itself out of it) is concerned with all the routine things of life—laying the breakfast table and cleaning the door-steps of our houses, tidying up our railway stations, and lighting the High Streets of our towns." Art has been too much relegated to journalism; it has fallen into the mesh of specialization, where it has acquired so nebulous a collection of terms that ordinary people give it gratefully "into the hands of the specialists who say they know all about it." Renamed and redeemed from this bondage it would become a competent element in the lives of the common people. Here we would find the essence of art and from this source would flow an art which would be the outward and visible form of the spirit of unity. With this, as Professor Lethaby suggests, who need worry about genius?

MOYCAH BRANDOW.

July 13, 1922.

The Architectural Record Company,
Gentlemen:

I am pleased to note the four pictures of the Lincoln school building which appear on pages sixty-five to sixty-eight of your July issue.

May I call your attention to an error in the name of the building which is misleading to the public? This is not a high school building alone, but is a combination of elementary, high school and educational research institution. I cannot imagine how the error occurred or how this name was furnished you as it is; of course, the architects and builders are aware that that is not the proper name.

It is true that the public is spending more money for building high schools than is spent proportionately in building elementary school buildings, and because of that fact the pictures might have more of an immediate appeal to people who are interested in high schools, but that is immediate only, and since it is an error I think that it might be well to call attention to that fact if it meets your approval.

Sincerely yours,

OTIS W. CALDWELL.



NÔTRE DAME, PARIS
Etching by DeWitt K. Fessenden.

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RESIDENCE ON THE MORRIS ESTATE,
OVERBROOK, PHILADELPHIA, PA. MELLOR,
MEIGS AND HOWE, ARCHITECTS.

THE ARCHITECTURAL RECORD

VOLUME LII



NUMBER 289

OCTOBER, 1922

CURRENT TENDENCIES IN COUNTRY HOUSE DESIGN IN THE EAST

By Aymar Embury II

THE most important thing about recent American country house architecture, especially along the Eastern coast, is the very great improvement in the average quality of the work. This has been brought to my attention during the past few weeks in two different ways. I have saved, ever since I began my work, illustrations of houses which seemed to me to possess genuine quality, and have filed them in rough accordance with their several styles. Some ten days ago in looking over the files, I found that nine-tenths of the material which I had collected prior to 1912 was of no further value to me, because even the average of today is better than what I once considered as the best. The second thing which struck me particularly, is the fact that of the great number of

two hundred fifty-one

photographs sent to the ARCHITECTURAL RECORD for possible use with this article, there was none which was not of sufficient interest to justify its publication. In fact, the selection of photographs to accompany this article has been a very difficult task because so much deserving work had to be omitted. It is most interesting to note, not only that the general average of all work improved, but also that the men who are doing country house work and doing it well are much more consistent than they once were. Any architect who has done a considerable number of buildings knows that among them there are a certain number in which he has failed to realize the quality of design which he attempted to achieve, and while I have no doubt that the architects of most of the houses submitted, feel that



RESIDENCE OF MRS. MARY McKELVEY, SPUYTEN DUYVIL,
NEW YORK CITY.

Julius Gregory, Architect.

these houses fall short of complete perfection, to the man who did not design them they seem to be of extraordinarily high quality, not only in pure design, but also in taste.

After all, the greatest advance that has been made during recent years has been in the matter of taste as opposed to pure design. I believe that in domestic architecture, especially, there are two independent factors which need consideration. First, the pure design of the building; that is, the proportions of its mass and the relationship between its subordinate features and that mass. Second, the quality of taste, by which I mean the choice of material, the choice of color, and above all, the choice of texture of the wall surfaces as well as the design of moldings and ornaments. Certain architects are very able designers without having much taste, and some architects of great taste have little ability as designers. The work

of today, however, seems to indicate that most of our successful practitioners have both. Twenty years ago when I was beginning work, this was not true; taste was a feature which was very little considered and I think that it was due more to the work of Mr. Charles A. Platt than to that of any other architect that our designers of country houses began to realize that a successful country house must be successful in both these ways.

I do not think that the best modern work is any better than the best work of fifteen years ago. I do not recall any recent country house more beautiful than McKim, Mead & White's Breese house at Southampton, or Charles Platt's Manor House at Glen Cove or Harry Lindeberg's Stillman house at Pleasantville, or, among the lesser houses, any finer than the Olcott house at Saratoga Springs done so many years ago by

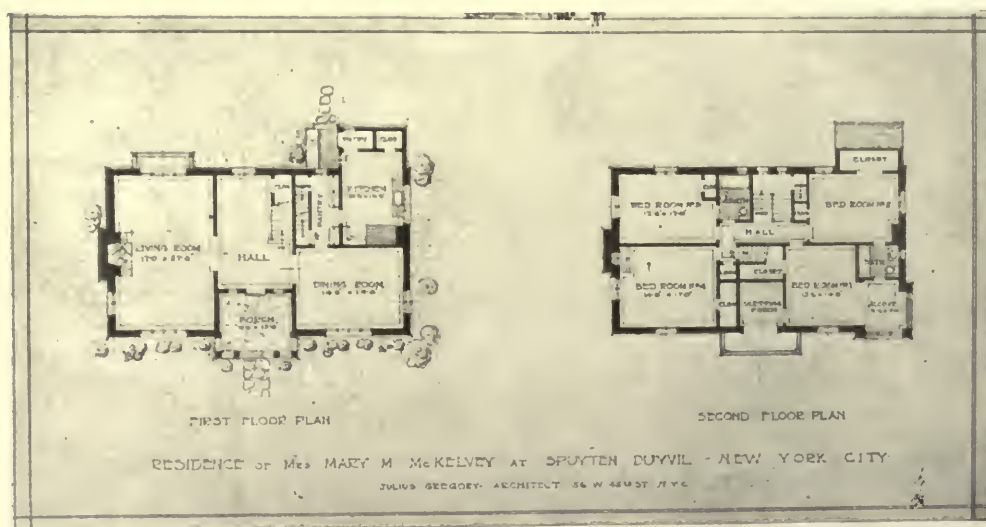
two hundred fifty-two



RESIDENCE OF MRS. MARY McKELVEY,
SPUYTEN DUYVIL, NEW YORK CITY.
JULIUS GREGORY, ARCHITECT.



RESIDENCE OF MRS. MARY McKELVEY, SPUYTEN DUYVIL,
NEW YORK CITY.
Julius Gregory, Architect.





RESIDENCE OF MRS. MARY McKELVEY,
SPUYTEN DUYVIL, NEW YORK CITY.
JULIUS GREGORY, ARCHITECT.

Keene and Mead. It is invidious to speak of the very many expensive and magnificent country houses built between 1900 and 1910, which were fifteen years ago considered of great excellence. Many of them are and will remain good examples of architecture; many of them have gone into the discard, but the small country house of excellence simply did not then exist, with the exception of a very few scattered examples. Mr. Joy Wheeler Dow had done a few which were and remain genuine contributions to the art of architecture. Mr. Frank E. Wallis had been a pioneer in reviving interest in the Colonial style as opposed to the architecture of columns and cornices which generally passed as Colonial, but these examples had no immediate effect upon the mass of American country house work, and it must not be forgotten that the architecture of any country will be judged not upon the few high spots of its art but upon the general average—the mass of all the work. Today we find that the average real estate operator builds houses with considerable attention to design. In many cases he even believes it desirable to pay fairly high fees for the services of architects of ability and to advertise the fact that the goods he has for sale are by competent makers. The small house is beginning again to tend toward the general high average of design which has made objects of pilgrimage of the few remaining towns in America where much Colonial architecture still exists.

Colonial architecture, like the Greek, was confined within very narrow limits; the designers contented themselves with endless repetitions of substantially the same motive with very slight changes in the treatment of the entrances, cornices and porches, and with such variations in mass as were required by the plan and the purse of the purchaser. Even irregularities of land influenced Colonial design to a comparatively small extent; if the property was too steep for the square box of the Colonial house, one end of the cellar was built up out of the ground; yet the remaining collections of Colonial houses, as for example, Litchfield or Nantucket, are neither monotonous nor stupid. So in the current work we find again a

tendency toward uniformity of design without monotony, although nowadays this applies rather to the treatment of the detail than to the mass of the building.

The illustrations of current work in the East show that the eclecticism of the architect of fifteen years ago has, to a large extent, disappeared. We find fewer houses derived from strange traditional styles. The bulk of the work, especially the work which is generally regarded as of high quality, is derived either from American Colonial and English Georgian, or from the English cottage type of architecture. The vogue for French architecture of the epoch of Louis XIV and XV has pretty well disappeared. We find few Italian or Spanish houses, and the traditional styles still less appropriate to American methods of living are conspicuous by their absence: in 1908 and 1909 I wrote a book about country houses in which I included examples of houses derived from Japanese sources. I haven't seen a single recent American house of Japanese origin in the East. American architecture seems to be settling down; the stunt is no longer desirable *per se* and the architects seem to be finding out what they should have known all along, that there is an infinite opportunity for variation and change within the comparatively narrow limits of the Georgian and English styles. I am inclined to think myself that even the English cottage style will merge gradually with our own Colonial and will add to it a flexibility and ease which the traditional Colonial did not possess.

This confusion of styles is especially noticeable in the treatment of windows. Grouped windows were almost unknown in Colonial work, while they were the rule rather than the exception in the traditional English rural type of house. Among the illustrations we find grouped windows used in houses which are otherwise of purely Colonial origin, yet their presence is not felt as an anachronism. Conversely, in many of the small houses of English derivation we find single double-hung windows in openings of distinctly classic proportion. The roofs in our modern houses of both classic and English origin have often about the same



GARDEN LOGGIA FROM UPPER WALK—RESIDENCE
OF F. S. McILHENNY, ESQ., CHESTNUT HILL, PA.
MELLOR, MEIGS AND HOWE, ARCHITECTS.



RESIDENCE OF F. S. McILHENNY, ESQ., CHESTNUT HILL, PA. MELLOR, MEIGS AND HOWE, ARCHITECTS.



RESIDENCE OF ROBERT T. McCracken, Esq., GERMANTOWN, PA.
Mellor, Meigs and Howe, Architects.

pitch, and there is a tendency to depart from the strictly classic cornices of the Georgian period, toward the crown molds at the eaves and rake molds on the gables which are suggestive of English cottage work rather than of Georgian or Colonial. Things of this kind appear constantly in the modern house. It is probable that few genuine Colonial houses had dormers at all, and I do not recall any in which the dormers broke through the cornice line. Yet we find very often in modern Colonial work the cornices stopped each side of a dormer, containing a window partly above and partly below the plate line. The rigid and invariable character of Colonial work is constantly becoming freer; the masses are less formal; there is less insistence upon the dominance of a single mass; and there is a tendency to compose the elements which make the country house in a rambling and picturesque fashion rather than with the prim sobriety that distinguished the old Colonial days.

Modern work is very distinctly modern in spite of the obvious derivation of almost all of its examples from classic forms, and yet within the family group of houses around the east there is evident considerable sectional variation. A study of current work will show that our modern houses, derived from the traditional Colonial, possess considerable local flavor and that around Boston the typical New England house continues to prevail, while the Philadelphia houses of today exhibit very strongly the characteristics of the old Pennsylvania work; in the neighborhood of New York we find country houses obviously derived from Colonial English sources, and others which follow the Dutch farm house precedent.

It seems almost impossible to write an article like this without including in it photographs of the best of the modern work of Boston architects and by men from Baltimore and the other Southern cities, but none are at hand and the illustrations are, therefore, perforce confined

to the work of New York and Philadelphia men. This should not, however, be taken to mean that I believe that all of the finest work is being done by New York and Philadelphia architects, but only that New York and Philadelphia men are doing very fine work and that a sufficient selection of illustrations can be made from these sources to illustrate the point to which American architecture has progressed at this moment, and to indicate its probable future development.

It will be noticed that the illustrations include a larger proportion than usual of houses of masonry construction, and it seems likely that in a not very distant future wooden architecture in the east will become a thing of the past. The expense of wooden construction is now not far below that of masonry, and while I think it unlikely that more beautiful houses can be designed in masonry than in wood (or perhaps even more durable houses), it is none the less true that the fire hazard is an element which leads toward the use of masonry when prices are about equal; also our country house architects have been compelled so long to design in wood that they find it somewhat more interesting to use other materials, either singly for the entire surface of houses, or in combination for different portions of it. They are learning daily how different materials can best be employed, either for artistic or for structural effect. Stucco surfaces are no longer covered with cracks; stone houses no longer leak; brick houses no longer look like sheets of cast iron with joints painted on the surfaces, and with the growing knowledge of materials themselves has come a greater freedom in their use.

Fifteen years ago, the "Colonial" house had to be of wood painted white with green blinds, an "Italian" house had to be of stucco with a tile roof and the "English Georgian" house had to be of brick. We know our styles better today. We know not merely the historic forms, but appear to feel the sentiment of the designers by whom these forms were originated, and as a consequence, our use of traditional styles is much freer in actual line than was the case some years ago

and yet far closer in spirit to the old work. I venture to say that there was not a single house built between 1890 and 1905 which would have fooled any one into thinking it was an old house. It was obviously a new house of the general shape, size and color of the older houses; the ornament was exactly duplicated and it lacked only one thing that the old house had—charm. Today, a very large proportion of our work would pass for old, even in the midst of old work, and that not because of any exact adherence to precedent but because our work, even with the plaster fresh on its walls, has the quality of charm which the earlier American designers sought to create by careful adherence to precedent. To take a case outside of the country house field: Charles Klauder built at Princeton a group of dining halls and dormitories in what is roughly called the English Collegiate Gothic style. If the drawings are examined, or if the buildings themselves are closely studied, one is aware that neither the mass nor the detail is English or Gothic, but is derived from English precedent and is an advance upon that precedent; yet the group would not be out of place in Cambridge or Oxford, and even in Cambridge and Oxford would be regarded as one of the finest if not the finest of the colleges. Yet this work of Klauder's was done without any tricks of artificial aging and without any manufactured imperfections; so in country house work we find many houses which appear in general to be of purely Colonial or Georgian or English precedent, although few indeed are literal transcriptions of old forms either in their mass or in their detail.

At times, I am inclined to think that the effort to produce texture in the country work has proceeded somewhat too far. There exists a craze for reproductions of antique work in furniture, hangings, wall paper, tapestries, etc., which has been reflected in the architecture of the houses to contain these objects, and there is a nebulous border line (often overstepped) between what seems a justifiable treatment of material to produce texture, and the creation of stage scenery by an imitation of the defects of old work. It will



RESIDENCE OF C. M. BROUN, ESQ., GERMANTOWN, PA.
Carl A. Ziegler, Architect.



RESIDENCE OF EDWARD BROWNING, ESQ., DEVON, PA.
R. Brognard Okie, Architect.



RESIDENCE OF C. M. BROUN, ESQ., GERMANTOWN, PA.
CARL A. ZIEGLER, ARCHITECT.



RESIDENCE OF L. C. WALLICK, ESQ., TENAFLY, N. J.
Aymar Embury II., Architect.

be remembered that some years ago the imitation of thatched roofs in steamed and bent shingles was exceedingly common. Now the imitation of the effect of one material by the use of another has been an architectural device from the earliest times and cannot in itself be considered as unjustifiable, but when such imitation in a house intended for comfortable and durable housing has these elements sacrificed to the scenic effect, it seems to me that the border line has been overstepped. Probably no one has used the imitation thatched roof more successfully than Mr. Harrie T. Lindeberg, and yet Mr. Lindeberg himself feels today that he was proceeding in the wrong direction when he attempted to get texture and picturesqueness in a roof surface by means of a device which was neither logical artistically, nor practically durable and permanent. To use another example, in the recently constructed Harkness Memorial Buildings at Yale, the entire exterior of the building has been subjected to an artificial aging process; the architect has consciously produced the effect of repaired work. The mullions of the windows have been chipped and rubbed, stone walls

have been apparently repaired with brick, and even the glass in some of the windows has been broken and reledged. There is no question that the Harkness Memorial Buildings are very beautifully designed, interesting in color, comfortable and durable, but to me such tricks were not only unnecessary, but cheapen the quality of the whole structure. The architect was not dependent upon such features to add to the interest of his buildings, for the design itself was fine enough. It is one thing to soften the moldings—that we have learned to do almost as second nature, but quite another to break pieces out of them. It is all very well to so treat the surface of a stone wall that there is a delightful play of light and shadow upon it, and another thing to consciously imitate the defects of old work in an effort to reproduce its charm. Our modern architects are temporarily suffering from a reaction against the hard, wiry, literal adherence to old forms. No doubt eventually the happy medium will be found, and the elements of design and taste will be balanced in their proper proportion.

We are on the whole, doing work of



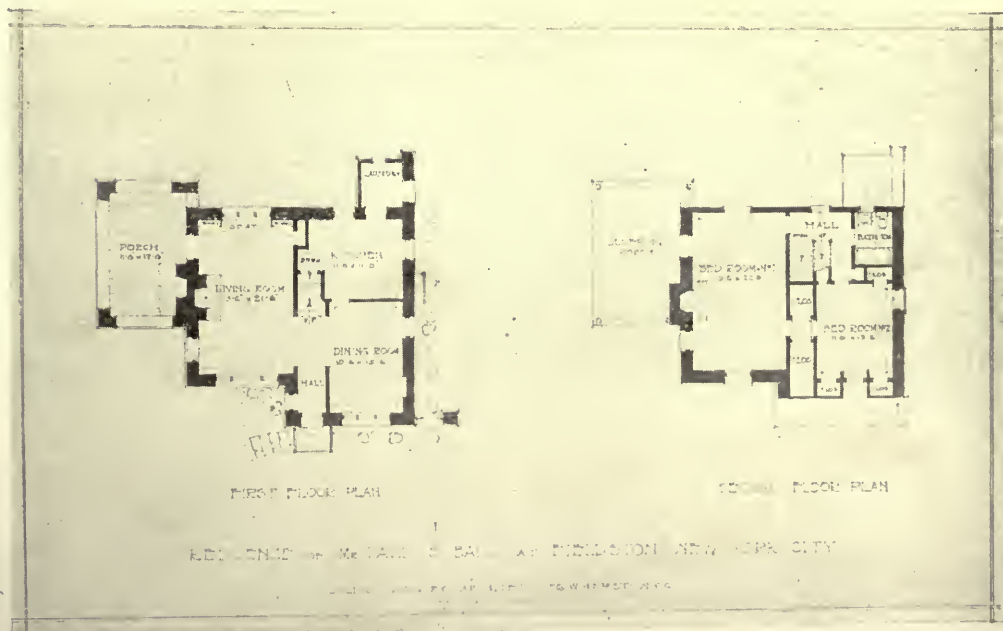
MAIN ENTRANCE—RESIDENCE OF I. WISTAR MORRIS, ESQ.,
CHESTNUT HILL, PA.
R. Brognard Okie, Architect.

greater excellence than we have ever done before, largely because we have at length learned that the architect cannot hop about from style to style and produce a masterpiece at every hop. One has to be pretty thoroughly soaked in historic forms before he can be sure that his results will be successful; not because he must copy these forms literally, but because the old work was the patient evolution of many

men's work for a long period of years, by which unpleasing or incongruous elements were eliminated. We are now endeavoring to find our own limits, and in so far as the old formulae govern the work of today, we must be aware of them; for the most part this knowledge has been gained, and at last the American architect appears to be thoroughly equipped for his by no means easy task.



RESIDENCE OF I. WISTAR MORRIS, ESQ., CHESTNUT HILL, PA.
R. Brognard Okie, Architect.





RESIDENCE OF DAVID S. BALL, ESQ., RIVERDALE, N. Y.
JULIUS GREGORY, ARCHITECT.



RESIDENCE OF DAVID S. BALL, ESQ., RIVERDALE, N. Y.
JULIUS GREGORY, ARCHITECT.



RESIDENCE OF DAVID S. BALL, ESQ., RIVERDALE, N. Y.
JULIUS GREGORY, ARCHITECT.

two hundred sixty-eight



RESIDENCE OF DR. MALCOLM McBURNEY,
ISLIP, L. I. DELANO AND ALDRICH, ARCHITECTS.



RESIDENCE OF WINCHESTER FITCH,
ESQ., GREENWICH, CONN. GODLEY
AND SEDGWICK, ARCHITECTS.



RESIDENCE OF WINCHESTER FITCH,
ESQ., GREENWICH, CONN. GODLEY
AND SEDGWICK, ARCHITECTS.



RESIDENCE OF HERBERT E. GUNNISON, ESQ., PURCHASE,
N. Y. WESLEY SHERWOOD BESSELL, ARCHITECT.



MAIN ENTRANCE—RESIDENCE OF HERBERT
E. GUNNISON, ESQ., PURCHASE, N. Y.
WESLEY SHERWOOD BESSELL, ARCHITECT.



RESIDENCE OF HERBERT E. GUNNISON, ESQ., PURCHASE, N. Y.
Wesley Sherwood Bessell, Architect.



PORCH—RESIDENCE OF HERBERT E. GUNNISON, ESQ., PURCHASE, N. Y.
Wesley Sherwood Bessell, Architect.



RESIDENCE OF E. R. HOOKER, ESQ., NEW HAVEN,
CONN. DELANO AND ALDRICH, ARCHITECTS.



RESIDENCE OF GEORGE WHITNEY, ESQ., WEST-
BURY, L. I. DELANO AND ALDRICH, ARCHITECTS.



RESIDENCE OF BURTON ETHERINGTON, ESQ.,
GERMANTOWN, PA. CARL A. ZIEGLER, ARCHITECT.



RESIDENCE OF PAYSON McK. MERRILL, ESQ.,
WOODMERE, L. I. DELANO AND ALDRICH, ARCHITECTS.



RESIDENCE OF JAMES R. VAN DYCK, ESQ., HACK-
ENSACK, N. J. AYMAR EMBURY II, ARCHITECT.



RESIDENCE OF MALCOLM McKAY, ESQ., TENAFLY, N. J.
Frank J. Forster, Architect.



STAIRWAY, RESIDENCE OF MALCOLM McKAY, ESQ., TENAFLY, N. J.
Frank J. Forster, Architect.



RESIDENCE OF MALCOLM McKAY, ESQ., TENAFLY, N. J.
Frank J. Forster, Architect.



GARAGE FOR MALCOLM McKAY, ESQ., TENAFLY, N. J.
Frank J. Forster, Architect.



RESIDENCE OF DR. RALPH PEMBERTON, PAOLI, PA.
R. Brognard Okie, Architect.



RESIDENCE OF DR. RALPH PEMBERTON, PAOLI, PA.
R. Brognard Okie, Architect.



ALCOVE BOOK ROOM—RESIDENCE OF
STANLEY BRIGHT, ESQ., READING, PA.
R. BROGNARD OKIE, ARCHITECT.



THE GARDEN—RESIDENCE OF COL.
G. W. FRENCH, DAVENPORT, IOWA.
HOWARD SHAW, ARCHITECT.



RESIDENCE OF MRS. K. M. KEELER, ROCKFORD, ILL.
Chatten and Hammond, Architects.

COUNTRY HOUSE ARCHITECTURE ~ IN THE MIDDLE WEST ~

◆◆◆◆ By ◆◆◆◆

Thomas E. Tallmadge, A. I. A.

MR. ROBERT ATKINSON, R. I. B. A., in a recent report (to his confrères at home) on architectural conditions in the United States, makes the statement that a defect in American architecture is a certain sameness of style and treatment, a lack of stylistic variety, and that this plastic monotony extends all the way from the Atlantic seaboard to the Golden Gate. Behold a distinguished British architect, critic, and educator saying, in effect, that here is an American style too homogeneous to express our national characteristics, environment, and aspirations. Had he asked American architects, "What is the matter with architecture in the United States?" he would have been told by nine out of ten of them that there were too many styles, too much variety, too little expression of the national genius. I should have said off hand that Mr. Atkinson was wrong, and I still say, on reflection and with qualifica-

tions, that he is wrong, and yet when one tries to contrast, by searching out the stylistic differences, the country-houses of East, Middle West, and Far West, the fact that Mr. Atkinson is not far wrong is brought home to one. When we think of the East we think of the Colonial, which we are informed we should call the Georgian style; but, scattered from Chicago to Lake Forest, on the bluffs of Lake Michigan or on the borders of the Skokie marsh, are Colonial houses, lots of them, sufficiently correct in detail (and the best of them sufficiently incorrect), to grace the shady lanes of Duxbury or the forgotten reaches of the James or the Maumee. Twenty years ago, when the Middle West was mentioned, the brilliant and original ornament and philosophy of Louis Sullivan, the long, low casemented houses of Frank Wright, the enthusiastic and courageous work of the other members of the Chicago School arose before one's eyes, but no longer is this typical. The effort



RESIDENCE OF J. A. DAVIS, ESQ., KNOXVILLE, TENN.
Spencer and Powers, Architects.

to create an American style has proved a failure. Many of the youngsters who saw in the golden arch of the Transportation Building the rainbow promise of an American style have, as middle-aged architects, been won over to eclecticism, or few in numbers are practicing with a clientele, not of the general but of the liberated few who share with them their architectural convictions. So no longer can it be said that the Chicago school is typical of country-house architecture in the Middle West. Only when some watcher of the styles surmounts the Rockies and with eagle eyes stares at the Pacific, or, more correctly, at the charming settlements bathing their white feet in its waters, does any distinctly local architectural type swim into his ken. Many houses there may be whose twin brothers and sisters you can find in Des Moines or Cleveland or Cambridge, but there are enough of such as Mr. Grey describes in another

part of this magazine to justify the generalization that the Pacific Coast has developed a local school of rare excellence.

One might think that even if the foreigner or domestic critic is disappointed in not finding a strong architectural contrast between what he believes to be the peculiar culture and leisure of the East and the equally supposititious woolliness and feverishness of the West, that differences in environment and particularly in building material would supply the difference in style for which his soul craves. But this is emphatically not so!

The elaborate villa on the prairies of Illinois and in the rocky foothills of the Adirondacks both look to Bedford, Indiana, for their building stone. They are both roofed with heavy and variegated slate from quarries of Vermont. Their oaken floors, trim and exterior woodwork come from the forests of the South. Face brick of all colors and textures comes, much of it, from Ohio and



RESIDENCE OF COL. G. W. FRENCH, DAVENPORT,
IOWA
HOWARD SHAW, ARCHITECT.



RESIDENCE OF HAROLD CLARK, ESQ., EVANSTON, ILL.
LOWE AND BOLLENBACKER, ARCHITECTS.

two hundred eighty-eight



RESIDENCE OF CHARLES B. PIKE, ESQ., LAKE FOREST, ILL.
DAVID ADLER AND ROBERT WORK, ARCHITECTS.



RESIDENCE OF CHARLES B. PIKE, ESQ., LAKE FOREST, ILL.
David Adler and Robert Work, Architects.



RESIDENCE OF CHARLES B. PIKE, ESQ., LAKE FOREST, ILL.
David Adler and Robert Work, Architects.



RESIDENCE OF M. R. SHUMWAY, ESQ., ROCKFORD, ILL.
Chatten and Hammond, Architects.



RESIDENCE OF CHARLES B. PIKE, ESQ., LAKE FOREST, ILL.
David Adler and Robert Work, Architects.



RESIDENCE OF M. R. SHUMWAY, ESQ., ROCKFORD, ILL.
Chatten and Hammond, Architects.

is freely shipped from state to state. There are certainly no local characteristics inherent in paint or plaster or glass, and when these country houses are designed by men educated for the most part in the same institutions and all looking to the old world as the procreator of taste, how can we expect fundamental or even superficial differences? There are no local schools in automobiles, in golf clubs or even in clothes. Local schools where they exist are therefore purely intellectual and factitious, limited to a town or two, and run a brief course. They almost invariably cluster about the work of some particularly strong designer who does work sufficiently distinguished or commanding to attract a following which conscientiously or unconsciously imitates him.

Especially significant were the houses hand picked for the critical inspection of the visiting delegates of the American Institute of Architects held last spring

in Chicago. Were they examples of the Chicago School? Were they specimens of architecture that would be something new under the sun to the architectural Brahmins from Boston and New York? They were not. They were houses so cosmopolitan in type that each could have smiled forth just as confidently from among the maples of Newport or the laurels of Fiesole. Each was distinguished in its locality for its impeccable discrimination, and together they formed a most illuminating school of comparative taste.

The first was a pure example of exoticism, an eighteenth century gardenia transplanted from the banks of the Loire and doing very nicely on the shores of Lake Michigan. The second, by a famous Eastern architect, was a pure but not simple Italian villa, rather sophomore in its rarified company. The third was the only one that dared, most

successfully, a touch of Shavian originality. The fourth, illustrated in this article, of no distinctive style, had drawn in the milk of architectural beauty of several ages and climes. It perhaps best typifies the prevailing ideal.

Taste; the sense of absolute pitch in architecture, the flower on the topmost bough of the tree of knowledge, is the *leit motif* of the country house architecture of today. Twenty years ago it was correctness of style, ten years ago fashion, but today (I am speaking only of the best work) there is no insistence on style, nor is there any sheep-like following of any latest mode. But sense and sensibility in architecture, decoration and landscape gardening, is required and delivered. There is nothing heroic about this savor of the beautiful, this taste, but there is nothing heroic about country houses. Nevertheless, an instinctive perception of

the beauty and fitness of all that goes with the building of the house is the brightest flower, the sweetest fruit, so far, of eclecticism.

One of the encouraging symptoms of this present and coming era of taste is a better *rapprochement* between architect and decorator. Their conflict, like that between dogs and cats and nature and a vacuum, is proverbial, dating back as it does to the family row among the arts in the sixteenth century, when Architecture, Painting and Sculpture, having been operated on by Drs. Brunelleschi, Da Vinci and Donatello, became endowed with a new vigor and decided to go it thenceforth "on their own." The architect has been in the habit of regarding the decorator as a necessary nuisance, a man without artistic conscience and devoid of any appreciation of the dignity of architecture. That he



GATE LODGE, RESIDENCE OF HATHAWAY WATSON, ESQ., WINNETKA, ILL.

A. N. Rebori, Architect.



RESIDENCE OF E. L. KING, ESQ., HOMER, MINN.
George W. Maher, Architect.

would, if given the opportunity, cover the walls of the Pantheon with a *chic* wall paper or hang chintz curtains over the windows of Amiens, the architect had not the slightest doubt, but the decorator in the last ten years has seen a great light. No longer is architecture created as a background for an all over splurge, no longer does the decorator begin where the architect left off. Yesterday decoration was largely a matter of covering walls and ceilings and working out color schemes for various rooms. The hangings he provided but the furniture and pictures "came from the old house." Today the house is decorated before the decorator begins, and he has become largely a furnisher and an antiquarian. The walls and ceilings require no coverings or color scheme, at least in the principal rooms, but great skill and experience is required in the selection of hangings, of furniture, rugs, pictures, tapes-

tries, etc. The architect has learned, too, from the decorator. He has seen even in imitation and sham a means of getting certain decorative and joyous effects impossible in the true and rigorous material. Thus plaster and wood crudely painted in imitation of marble may in some places bring back the quaint charm of 18th century artificiality. I have seen a linoleum floor elaborately painted with lozenges and circles of verd antique and sienna which was warmer and more homelike and certainly less slippery than its marble original. The lamp of truth is not going to be extinguished because its flame glows rose red occasionally and even sputters a bit, nor is Diana's authority lessened if some of her handmaidens be less chaste than herself; but over these examples of architectural wantonness, of these strayings from Phidian paths, taste must rule with an iron hand.

If sameness of type is a defect, our

gardens are in worse case than our country houses. The only national style of gardening we ever had flourished fifty years ago. The hard smooth lawn, the canna and geranium flower beds cunningly fashioned by the German gardener in the shape of stars, crescents, anchors, etc.; the cast iron dog; the bright green fountain with the white storks of the same rigid material as the dog and drooling a stream of water as feeble and futile as the whole layout, are fortunately gone. No, the principal defect of landscape gardening in the Middle West is that there is so little of it. The profusion of beautiful gardens in Lake Forest, Illinois, is the exception. Here as elsewhere in the Middle West and in the East the estate in general follows an

informal or naturalistic type of development including a formal garden, usually small in scope, laid out in a modified Italian manner and located on the axis of one of the principal rooms of the country house. Owing to the calcareous nature of our soil, we are at a disadvantage with our eastern cousins. Such decorative plants as laurel, rhododendrons, and English ivy will not grow successfully with us, and in most localities abrupt differences in grade can only be obtained artificially. Gardening with us is in its 'teens, but is rapidly coming on. Such organizations as the Women's National Farm & Garden Association with its local garden clubs are doing a splendid work. The influence of Jens Jensen—an apostle of natural planting and informal arrange-



RESIDENCE OF E. L. KING, ESQ., HOMER, MINN.
George W. Maher, Architect.



RESIDENCE OF E. L. KING, ESQ., HOMER,
MINN. · GEORGE W. MAHER, ARCHITECT.

ment, and of the development of the "Prairie Line"—has been considerable and beneficial. The Friends of Wild Flowers, The Forest Preserves and the examples of such gardens as Mr. C. L. Hutchinson's at Lake Geneva have encouraged the development of wild flower gardens. Dry wall planting, heretofore thought to be impossible, has been proved extremely practicable, and in this feature, together with the use of perennials for borders and backgrounds, we see the influence of William Robinson, the English informalist, and Sir Edwin Lutyens.

In many respects the trilogy of the country house—the house itself, its decorative contents, and its use of nature for

a setting—is the best thing that American architects have done. The writer was told last spring by an English architect after a little journey that took us from Hampstead Heath to Threadneedle Street, and comprised most of the important work done in the last ten years, that the principal architectural influence in England today was the United States. We undoubtedly have taught her a great deal in the planning and construction of monumental buildings, and have left traces of our fine Italian hand in her architectural design, but if we tried to teach old England how to build country houses we would be assuredly sending coals to the well-known city on the Tyne!



WILD FLOWER GARDEN, RESIDENCE OF C. L. HUTCHINSON, ESQ., LAKE GENEVA. ILL.
two hundred ninety-seven



RESIDENCE OF FRANCIS PARKER, JR., LAKE
FOREST, ILL. CLARK AND WALCOTT, ARCHITECTS.



RESIDENCE OF FRANCIS PARKER, JR., LAKE
FOREST, ILL. CLARK AND WALCOTT, ARCHITECTS.



RESIDENCE OF MARK ROSS, ESQ., FLOSSMORE,
ILL. PURCELL AND ELMSLIE, ARCHITECTS.



RESIDENCE OF MARK ROSS, ESQ., FLOSSMORE,
ILL. PURCELL AND ELSLIE, ARCHITECTS.



RESIDENCE OF MARK ROSS, ESQ., FLOSSMORE,
ILL. PURCELL AND ELMSLIE, ARCHITECTS.



SIMMONS RESIDENCE, KENOSHA, ILL.
N. MAX DUNNING, ARCHITECT.



HOUSE IN EVANSTON, ILL.
Clark and Walcott, Architects.



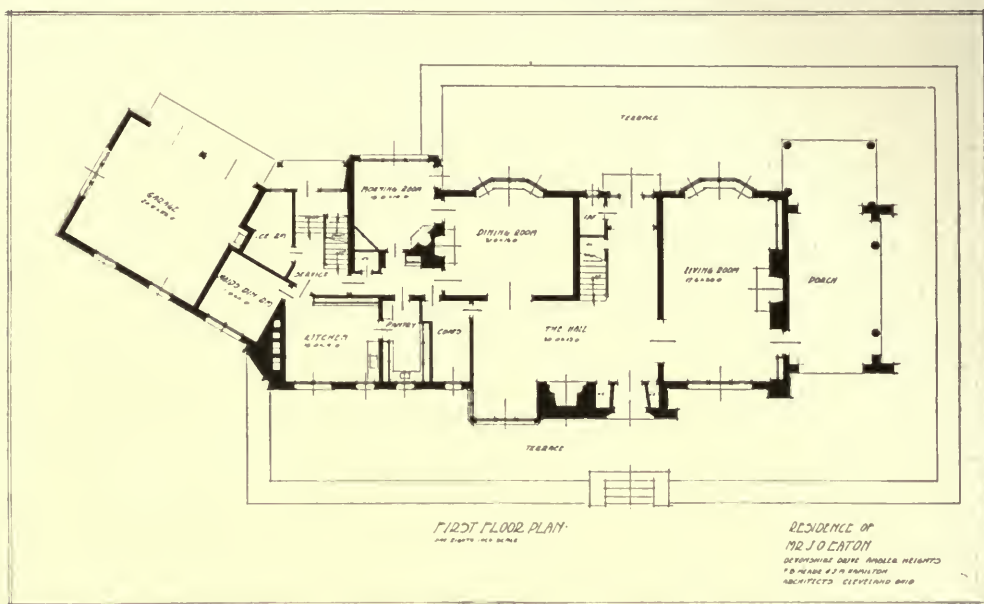
HOUSE IN WINNETKA, ILL.
Clark and Walcott, Architects.



RESIDENCE OF JUDGE STEPHAN FOSTER, WINNETKA, ILL.
Tallmadge and Watson, Architects.



RESIDENCE OF JUDGE STEPHAN FOSTER, WINNETKA, ILL.
Tallmadge and Watson, Architects.



RESIDENCE OF J. O. EATON, ESQ., AMBLER HEIGHTS, CLEVELAND, OHIO.
Frank B. Meade and James M. Hamilton, Architects.



RESIDENCE OF J. O. EATON, ESQ., AMBLER HEIGHTS, CLEVELAND, OHIO.
Frank B. Meade and James M. Hamilton, Architects.



RESIDENCE OF J. O. EATON, ESQ., AMBLER HEIGHTS, CLEVELAND, OHIO.
Frank B. Meade and James M. Hamilton, Architects.



RESIDENCE OF D. L. JAMES, ESQ., CARMEL HIGHLANDS,
CAL. CHARLES SUMNER GREENE, ARCHITECT.

SOME COUNTRY HOUSE ARCHITECTURE IN THE — FAR WEST —

By Elmer Grey

IF the style of country houses were more generally measured by the degree to which they fit their environment, instead of by that to which they coincide with those of distant countries, the much discussed problem of architectural style would be greatly simplified. If this factor of adaptability to environment is borne in mind when considering the country house architecture of the Pacific Coast, some of it may be better understood. The Pacific Coast, like our country as a whole, is divided into sections, the architecture of each influenced by certain marked conditions. Some of these involve the juxtaposition of neighboring countries, while others, in some cases more important, have to do with climatic or topographical characteristics. On the south is the architecture of Southern California, influenced by the proximity of (Spanish) Mexico and by a climate and topography similar to that of Spain, Italy and Sicily; on the north is the architecture of Washington and Oregon, influenced by the proximity of (English) Canada and by a climate and arboreal growth not unlike that of some parts of England. Between these two, and of course merging more or less into them, is the architecture of Northern California, affected somewhat by the influences to the north and south but also in certain districts and in some instances by marked topographical characteristics of its own.

I feel that too much emphasis is often placed upon the architecture of distant countries in considering the style of country houses, and far too little given to the idea of making a particular home fit its particular environment; and this truth could not be better exemplified than by considering a certain stretch of country situated about one hundred miles south of San Francisco, in connection with a very

notable country house recently built there. To make this point clearer it is necessary to say something descriptive of the particular stretch of country in question. I shrink from this task because I know that no words of mine can begin to do it justice. I am ashamed to say that I lived in Southern California for something like fifteen years before I discovered one of the most beautiful sections of coast and mountain scenery in the world—rivalling the Italian Riviera with its Amalfi and the eastern Sicilian shore with its Taormina—and that so beautiful a spot was as near my home as this section on the Pacific Coast, south of San Francisco, called Carmel Highlands.

The shore line at this point is very high and rocky and is indented with many bays and small inlets. Into these inlets ocean swells roll and dash and surge, and here and there fields of seaweed, clinging tenaciously to half submerged rocks, are wafted to and fro like miniature forests. Above the roar and spray rise the rocky walls of cliffs whose jagged faces have been seared and broken by the constant pounding of the waves, and whose brilliant color has afforded endless inspiration to artists. On top of the cliffs the country in some places is thickly overgrown with pines and the gnarled shapes of Monterey cypresses, while at others are open fields interspersed with massive boulders and occasional trees and often dotted with the white and black or reddish brown spots of grazing cattle. The inlets referred to must have been ideal places at one time for smugglers and buccaneers, and some of their landing places may still be located by much corroded iron rings here and there, evidently driven into interstices in the rock ages ago. Back of the cliffs there rise in some places towering mountains of majestic outline, while at others peaceful

valleys wander inward, inviting exploration and promising further delight to the appreciative eye of the seeker.

It is amidst such wild and beautiful scenery as this that Mr. D. L. James undertook to build a home.

He chose as his architect Charles Sumner Greene, of Carmel-by-the-Sea, and he could not have done better. Mr. Greene has been excellently trained; it has been said that an artist should learn the rules of his art and then try largely to forget them, and Mr. Greene has been as good a forgetter of this kind as he has been a scholar. The rules of art, like our laws of justice, are made to cover generalities; and just as there are doubtless many miscarriages of justice in consequence, so in art, when great fundamental conditions of suitability to marked scenic characteristics overtop in importance rules which were made to cover generalities, it is too bad that more architects are not able to sense the more important conditions and discard the rules. If Mr. James' house follows any historical style I have yet to know just which one it is; there are features about it which recall the Spanish, there are others which are not Spanish at all. The general effect of the house is not recognizably Spanish. The house appears to me as though by some species of spiritual affinity it had alighted upon the rocky bluff and stayed there, or else that by some peculiar generating power it was born upon the rock itself. This is not an attempt at flowery language; it is as near as I can get to describing how it actually impressed me. Laymen will timidly ask architects their opinion of it, hoping for commendation but dreading lest its very unusual quality be considered by those better qualified to judge sufficient cause for shattering their admiration of it. Yet with all this unusual quality it is not ostentatious. Its unusualness does not shock by any violation of good taste, but rather surprises by a rare suitability.

The material of which it is constructed is practically the same rock as that upon which it is built. The long narrow pieces of this stone have been cut into horizontal fissures by very deeply struck joints of uneven width. This gives the same gen-

eral worn-by-age appearance as that of the cliffs. The color aspect of the stonework is saved from sameness by a tile roof of a delightfully faded old rose color—and the tiles are distributed around in just the right proportions, some on top of the chimneys and other bits elsewhere, so as to form a proper color balance. They were not laid in geometrical lines either vertically or horizontally. Nine architects out of ten would have laid them that way, but this is an instance where not only were rules forgotten but where the architect went out of his way to violate them. The ridge lines roll up and down with delightful waywardness, and the vertical lines of the tile appear and disappear as their usual course has been intentionally broken. The way some of the main lines of the building grow out of the rock and huge boulders upon which they are built, their foundations often beginning many feet below and gradually working upward in sympathetic conjunction with the native cliff rock; has been managed so skilfully that it is impossible in some cases to tell where the one ends and the other begins. This kind of work is not architecture as architecture is now commonly known—it savors of a more plastic art, of the building of a home in thorough keeping with its rugged site. Ordinary present-day architectural methods did not prescribe the rules for its expression. In fact, I doubt whether the same result could have been achieved by ordinary present-day architectural methods. The work was done on the percentage basis and changes were made from the original plans as seemed advisable as the work progressed. I am not championing this method particularly, because I believe it has its disadvantages as well as its merits, but I mention it because it explains how some of the remarkable results here obtained were accomplished. To quote Mr. Greene: "Ordinarily, when plans are made for a house, after careful study they are practically final, and the specifications minutely exact. These are turned over to a contractor who by contract produces the completed product. Whether he does the work by percentage or a stated sum doesn't matter, he directs the work. Now



RESIDENCE OF D. L. JAMES, ESQ., CARMEL HIGHLANDS,
CAL. CHARLES SUMNER GREENE, ARCHITECT.



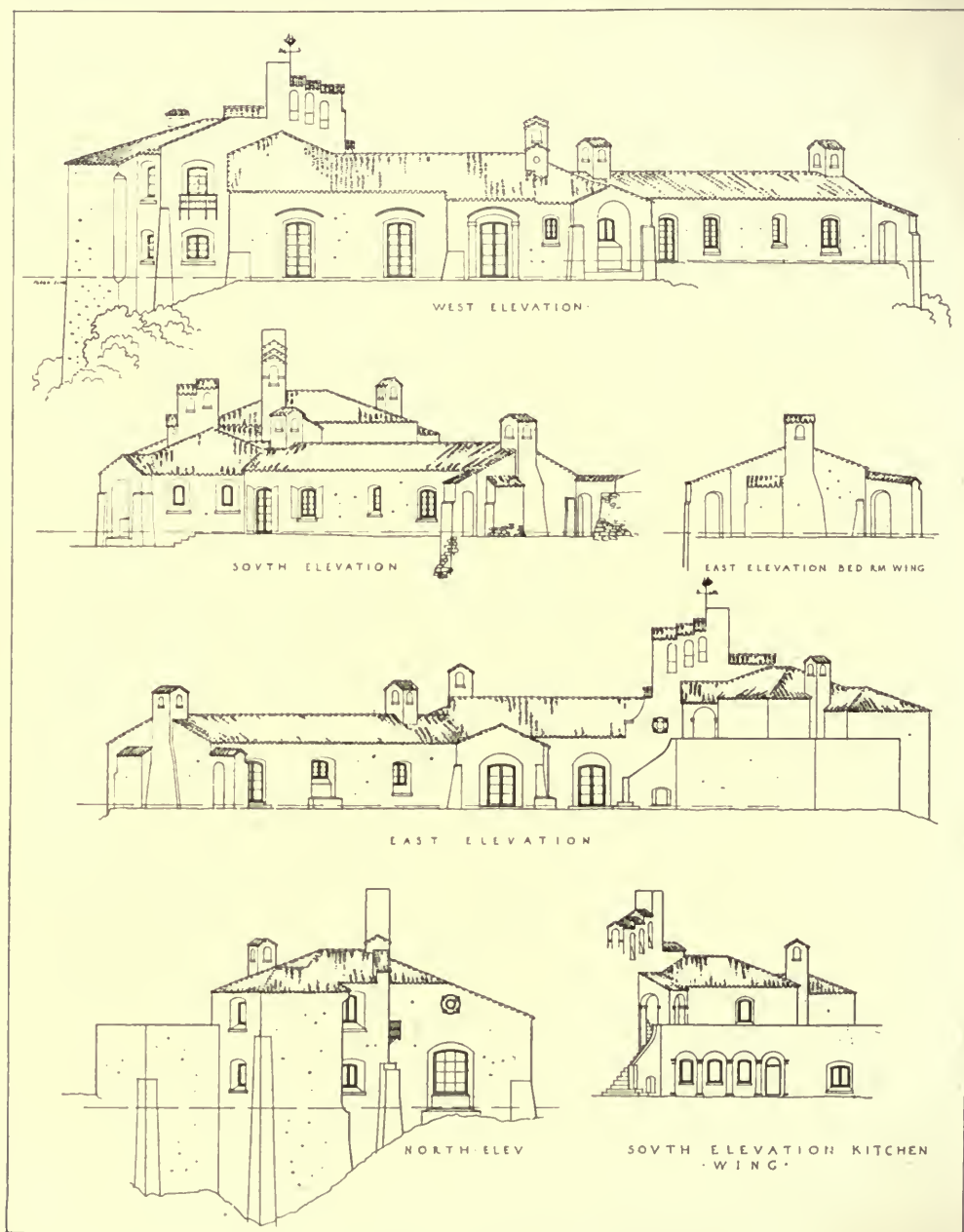
RESIDENCE OF D. L. JAMES, ESQ., CARMEL HIGHLANDS, CAL.
Charles Sumner Greene, Architect.



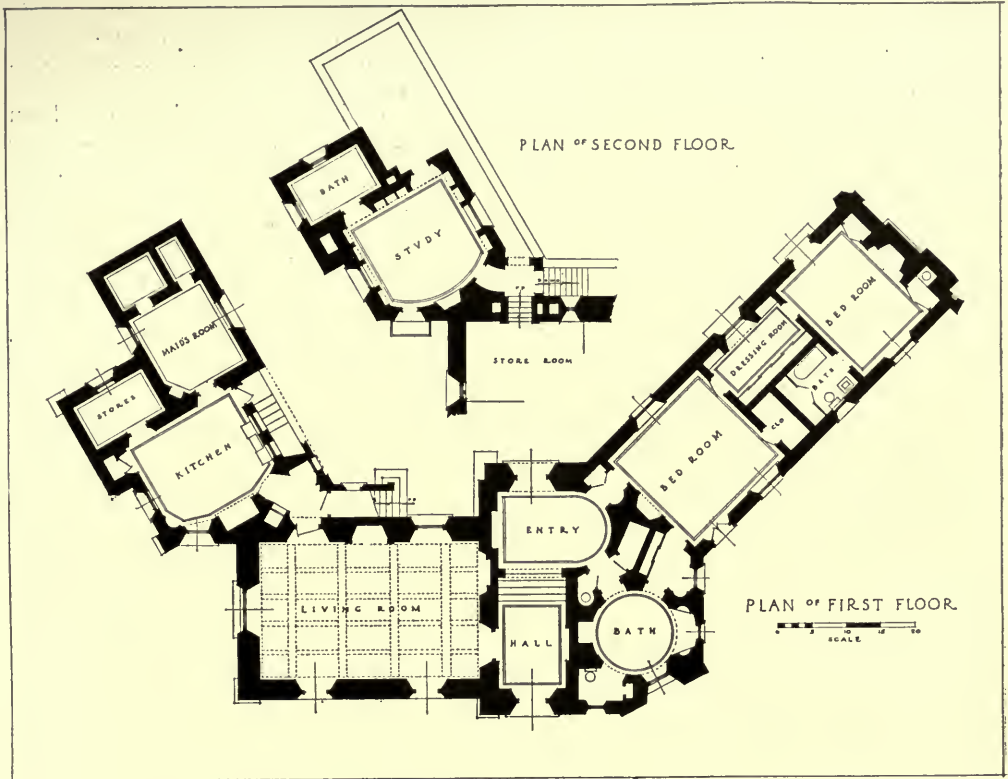
RESIDENCE OF D. L. JAMES, ESQ., CARMEL HIGHLANDS, CAL.
Charles Sumner Greene, Architect.



RESIDENCE OF D. L. JAMES, ESQ., CARMEL HIGHLANDS,
CAL. CHARLES SUMNER GREENE, ARCHITECT.



ELEVATIONS, RESIDENCE OF D. L. JAMES,
ESQ., CARMEL HIGHLANDS, CAL.
CHARLES SUMNER GREENE, ARCHITECT.



PLAN OF FIRST AND SECOND FLOORS, RESIDENCE OF D. L. JAMES, ESQ.,
CARMEL HIGHLANDS, CAL.

Charles Sumner Greene, Architect.

the James house was not built that way. The architect hired the men and directed the work personally; except for plumbing, electric wiring and tiling, there were no contracts."

"Here is the difference; prevailing custom is system of administration by recorded instruction; mine is not *any* system, but personal direction on the job. The first is fixed, the second is elastic, yielding to contingencies, open to inspiration."

I don't know who was the first to recognize that in a spot of such romantic beauty it was due the countless thousands who would afterward view the place, to build something there that would not detract from the original aspect of the scene; whoever it was, the obligation was wonderfully met. Too often in a place of great natural beauty, people will build that which for generations afterwards

three hundred fifteen

will be nothing short of an offense to the eye. There ought to be some kind of censorship at all such places, which would see to it that only such buildings were built there as would harmonize with Nature's original plan. Such a censorship has been tried and has been a success. At St. Francis Wood, an outlying suburb of San Francisco, the land was sold on the condition that all plans for buildings to be erected thereon would have to meet the approval of an architect engaged by the sellers for such a purpose, and just as a monetary building restriction operates to deter some from buying but attracts others of a higher class, so did this quality censorship operate ultimately to enhance the value of the property. Of course, it took courage to do it, but what is the use of living if not to attempt to do things worth while. Adjoining Carmel Highlands, there is some-

thing like twenty-five miles of country to the South which is of the same class of rare scenic beauty and which undoubtedly will some day be opened to the public for residential purposes. If the sellers of such beautiful stretches of coast line would look far enough ahead and control the quality of the houses built thereon, what might they not do for posterity?—yes, and also for themselves! For what is it but beauty that causes tourists to flock to the Italian and French Rivas and spend their money there? What is it but the lack of such beauty that causes other districts of Europe to be scarcely visited by money-spending tourists at all? And what constitutes the attractive quality of the former popular resorts, but the charm of what man has added to them in the way of well-designed architecture? There is no question or doubt but that uniform good taste displayed in buildings in such a coast district as that of Carmel Highlands and

the country south of it, secured by some sort of effective censorship, would make of it one of the most valuable resorts in the world.

Carmel Highlands itself has so far been rather fortunate in this respect on the whole. There are a few houses there which, if it could only be done without hardship to their owners, might well be engulfed by a tidal wave, but for the most part the homes are inoffensive and a few are charming.

The one hotel, Carmel Highlands Inn, is a structure that fits its surroundings beautifully. It is built of native rock, and so far as I know no architect was employed to design it; nevertheless, whoever did it had a sympathetic appreciation of the beauty of the site and planned in accordance therewith in a way that is entirely satisfying.

Near the hotel on the side of a bluff, is another house of appropriate character, the home of Mrs. Charles Bigelow. It



RESIDENCE OF MRS. CHARLES BIGELOW, CARMEL HIGHLANDS, CAL.



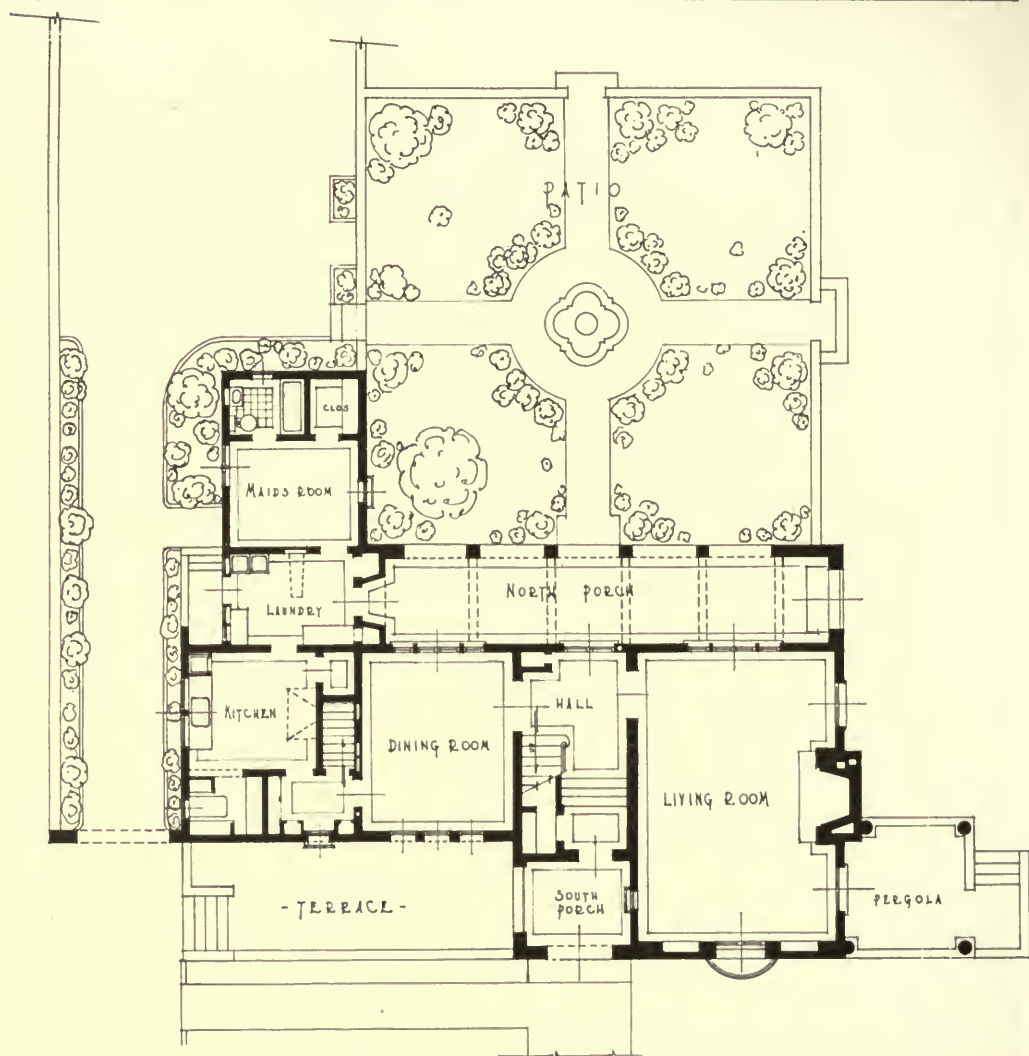
RESIDENCE OF MRS. CHARLES BIGELOW,
CARMEL HIGHLANDS, CAL.



PATIO, RESIDENCE OF HENRY W.
SCHULTZ, ESQ., PASADENA, CAL.
ELMER GREY. ARCHITECT.

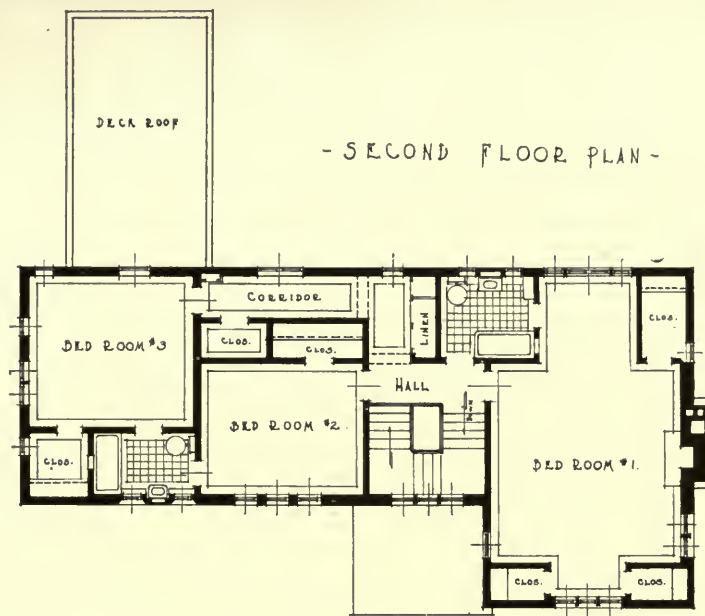


RESIDENCE OF HENRY W. SCHULTZ, ESQ.,
PASADENA, CAL. ELMER GREY, ARCHITECT.



- FIRST FLOOR PLAN -

RESIDENCE OF HENRY W. SCHULTZ, ESQ.,
PASADENA, CAL. ELMER GREY, ARCHITECT.



RESIDENCE OF HENRY W. SCHULTZ, ESQ.,
PASADENA, CAL. ELMER GREY, ARCHITECT.



RESIDENCE OF WILLIAM M. LADD, ESQ., PORTLAND,
ORE. LAWRENCE AND HOLFORD, ARCHITECTS.



RESIDENCE OF WILLIAM M. LADD, ESQ., PORTLAND, ORE.
Lawrence and Holford, Architects.



RESIDENCE OF GEORGE T. COOK, ESQ., PEBBLE BEACH, CAL.
Pierpont and Walter S. Davis, Architects.



RESIDENCE OF GEORGE T. COOK, ESQ.,
PEBBLE BEACH, CAL. PIERPONT
AND WALTER S. DAVIS, ARCHITECTS.



RESIDENCE OF GEORGE T. COOK, ESQ.,
PEBBLE BEACH, CAL. PIERPONT
AND WALTER S. DAVIS, ARCHITECTS.



RESIDENCE OF GEORGE T. COOK, ESQ.,
PEBBLE BEACH, CAL. PIERPONT
AND WALTER S. DAVIS, ARCHITECTS.



HALLIDAY HOUSE, SANTA MONICA, CAL.
PIERPONT AND WALTER S. DAVIS, ARCHITECTS.



HALLIDAY HOUSE, SANTA MONICA, CAL.
PIERPONT AND WALTER S. DAVIS, ARCHITECTS.

three hundred twenty-nine



HALLIDAY HOUSE, SANTA MONICA, CAL.
Pierpont and Walter S. Davis, Architects.



HALLIDAY HOUSE, SANTA MONICA, CAL.
Pierpont and Walter S. Davis, Architects.



HALLIDAY HOUSE, SANTA MONICA, CAL.
PIERPONT AND WALTER S. DAVIS, ARCHITECTS.



LOUGHLIN PARK, HOLLYWOOD, LOS ANGELES, CAL.
WILLIAM M. CLARKE, ARCHITECT.

three hundred thirty-two



RESIDENCE OF W. S. MORSE, ESQ., PASADENA, CAL.
Reginald D. Johnson, Architect.

stands somewhat below the level of one of the main roads and since one thus looks down upon it, the appearance of its roof became an important consideration. This fact was duly recognized, a hint was taken from the proximity of the giant redwood forests, and the roof was accordingly covered with huge slabs of redwood put on as shingles and averaging perhaps two inches in thickness at their butts. The resultant effect is not only unusual, but harmonizes exceptionally well with the tall pine trees abounding in the neighborhood and with the general rugged character of the surroundings. A lovely garden of equally suitable design forms an acceptable accompaniment to this house. It consists of well proportioned paved spaces situated upon different levels, of flights of steps built of rough stone connecting and binding the different levels together, of enclosing walls of the same yellow colored

rock, of quiet pools and of native plants and flowers growing contentedly in and among the crevices of the rocks.

Even a portion of a house (the studio of Mr. William Ritschel, to be enlarged later on), although at present but a cube in shape, fits its environment better than do some of the more pretentious houses there, simply because of the sympathetic manner in which the texture of its stone walls was handled.

A few miles north of Carmel Highlands, at Carmel-by-the-Sea, is El Carmelo Mission, and a short distance still further north is the old city of Monterey where are still standing many original Spanish buildings. There is, however, all around this district a climatic suggestion of the northern part of the Pacific Coast. Fogs are more or less prevalent and consequently a much richer vegetation is noticeable than is to be seen further south in California. Two influences

are thus at play there, the Spanish buildings more typical of the south, and a touch of the more vivid greenery characteristic of the north. These two influences find their expression in the architecture of the district somewhat, and it is right and proper that they should. Just such influences as these, properly sensed and heeded by those who build, give architectural individuality to a place. Some may question this and others may even say, "Why not build anything one wants anywhere and in any style one wants?" but the answer to such a query is so conclusive and contains such important truths that we may well consider it for a moment.

Most people when they build hope to please that part of the public possessed of the best taste—and those who don't surely should! Now the principles governing the best taste are fixed; it is only their application that varies. These prin-

ciples were enunciated over a century ago by Sir Joshua Reynolds in his Discourses on Art. He applied them to the art of painting, but they are equally applicable today, with but slight variation, to the art of architecture.

"In all cases," Sir Joshua wrote "in the lightest amusements as well as in the most serious actions and engagements of life, we must regulate our affections of every kind (that is, our tastes), by that of others. The well disciplined mind acknowledges this authority, and submits its own opinions to the public voice." Then he goes on to speak of the "deference which we owe" to such previous character of architecture, and that "deference" it seems to me is the root of the whole matter. A man hasn't a right to come to a new country and build anything he likes there regardless of its character or previous architecture, simply because such an act would be a bull



RESIDENCE OF W. S. MORSE, ESQ., PASADENA, CAL.
Reginald D. Johnson, Architect.



RESIDENCE OF W. S. MORSE, ESQ., PASADENA, CAL.
Reginald D. Johnson, Architect.

in a china shop procedure. People of the best taste do not like it, and it is not logical. "An affection to old habits and customs is a predominant disposition of the mind, and novelty comes as an exception; where all is novelty the attention, the exercise of the mind is too violent," Sir Joshua also wrote. The weakness of much of the present architecture in Southern California consists of just such a condition, namely that building companies and real estate men, and even some architects, have crowded certain suburbs with every conceivable kind of architectural innovation in a frantic endeavor to secure novelty, and the result is that "the exercise of the mind is too violent."

What is needed there is more of the atmosphere of some portions of Philadelphia or London, where a uniform similarity among the buildings creates a quiet, satisfying harmony. Just now the general

character of the architecture in Southern California is too much like a fancy dress party. I once knew a firm of architects of whose work a criticism was overheard in a street car. The remark was, "Oh, yes, I know of them, they are the *plain* architects!" What Southern California needs now is more "plain architects"—architects whose buildings do not cry to high heaven for recognition but, like well-dressed men on the street, are willing to conform to an established convention. Fortunately there are tendencies working in that direction. The present craze for the Spanish is teaching the value of plain wall surfaces and of interesting wall textures, and although many of the plastered surfaces of Spanish houses in Southern California have been done poorly, and some even grotesquely, the good examples ought finally to have the stronger influence through selection and process of

three hundred thirty-five

elimination. Even the attempts of the Hopi Indian may not be without their value; for they show how much more pleasing is the undulating wall surface than the absolutely straight surface on a plastered wall. Some instances of houses done after this manner have been well composed and relieved by foliage and have produced charming effects.

It is not only to the architecture of the immediate locality in which we build that we owe such a deference as Sir Joshua speaks of, but we also owe a lesser one to that of more distant neighbors. That is the reason why, in building in Southern California so near to Spanish Mexico, we should by some sort of recognition in our design, however slight, respect the Latin architecture so close by. That is the reason why in building in the state of Washington some regard for the architecture of our Canadian neighbors is due. It does not follow that we must build exactly like the Spaniards when we build in Southern California, nor exactly like the Canadians when we build in the state of Washington, because we have our own individuality to express as well as theirs to respect, but nevertheless, the two styles situated so near each other should be brought somewhat in accord.

This can be and is being done in various ways. English houses built in Southern California look better when covered with stucco rather than with face brick—probably because most Latin houses there are of stucco—and many of them appear quite at home when done that way. Colonial houses whose detail has been merged into the Italian appear better there than such houses whose detail is strictly Colonial—and why should they not, since the Colonial and Italian detail both came from the same root, while most of the Colonial style, as a whole, was born in a northern clime. Whatever in this manner tends to harmonize styles whose home environment was quite different, but which undertake to commingle in the Far West, seems to be a help.

And why should it not, for still another reason? When a painter paints a picture he must unite the various parts of his subject into a unity of composition

if he is to create a work of art. When a writer writes a story or an essay he must make of it a unified conception if it is to be a work of real merit. Why should not the greatest composer of all, he who uses the inspirations, the characters and the talents of men as material out of which to mould the architectural styles of countries, and who takes generations of their lives in which to accomplish his purpose, work in like manner?

Those who come to the Far West come from all over the world, bringing with them likes and dislikes that are radically different, and while undoubtedly it is asking too much to expect that they should part with such accumulated associations altogether when they move West, yet certainly they should be willing to meet the West half way. I once had a client who intended to build in Coronado. He was a middle-westerner, but nevertheless, he realized that he was about to build in a country whose traditions and climate were totally unlike his former place of residence, and one of the first things he said was, that he did not wish to do anything in his building operation that would not conform with the architectural spirit of his new environment. If more people who move to the Far West had that idea, it would be better for the country.

Perhaps it is inevitable that there should be a jumble of styles in the West for quite a while to come; with all the different tastes that are constantly arriving there perhaps it cannot be otherwise, but certainly these must eventually be harmonized if ever they are to be welded into a homogeneous style or styles characteristic of its various sections. To be sure, a lot of such harmonizing will have to be done to accomplish such a result—but I have wondered at times what London looked like when it was as new as Los Angeles!

To a greater degree than England ever was is the Far West a kind of alembic into which have been poured the architectural aspirations of multitudes of dissimilar people. Something of a distilling process even now is undoubtedly going on. After it has been under way for a few more generations perhaps it will



RESIDENCE OF W. S. MORSE, ESQ., PASADENA,
CAL. REGINALD D. JOHNSON, ARCHITECT.

yield something in the way of architectural style that will be really creditable. The Far West has not been unlike all of America in that respect. Our country as a whole has been a melting pot for the

architectural styles of Europe. In the West, the raw metal has had less time to cool. Some day it must cool and only then can the quality of its architecture be thoroughly and fairly assayed.

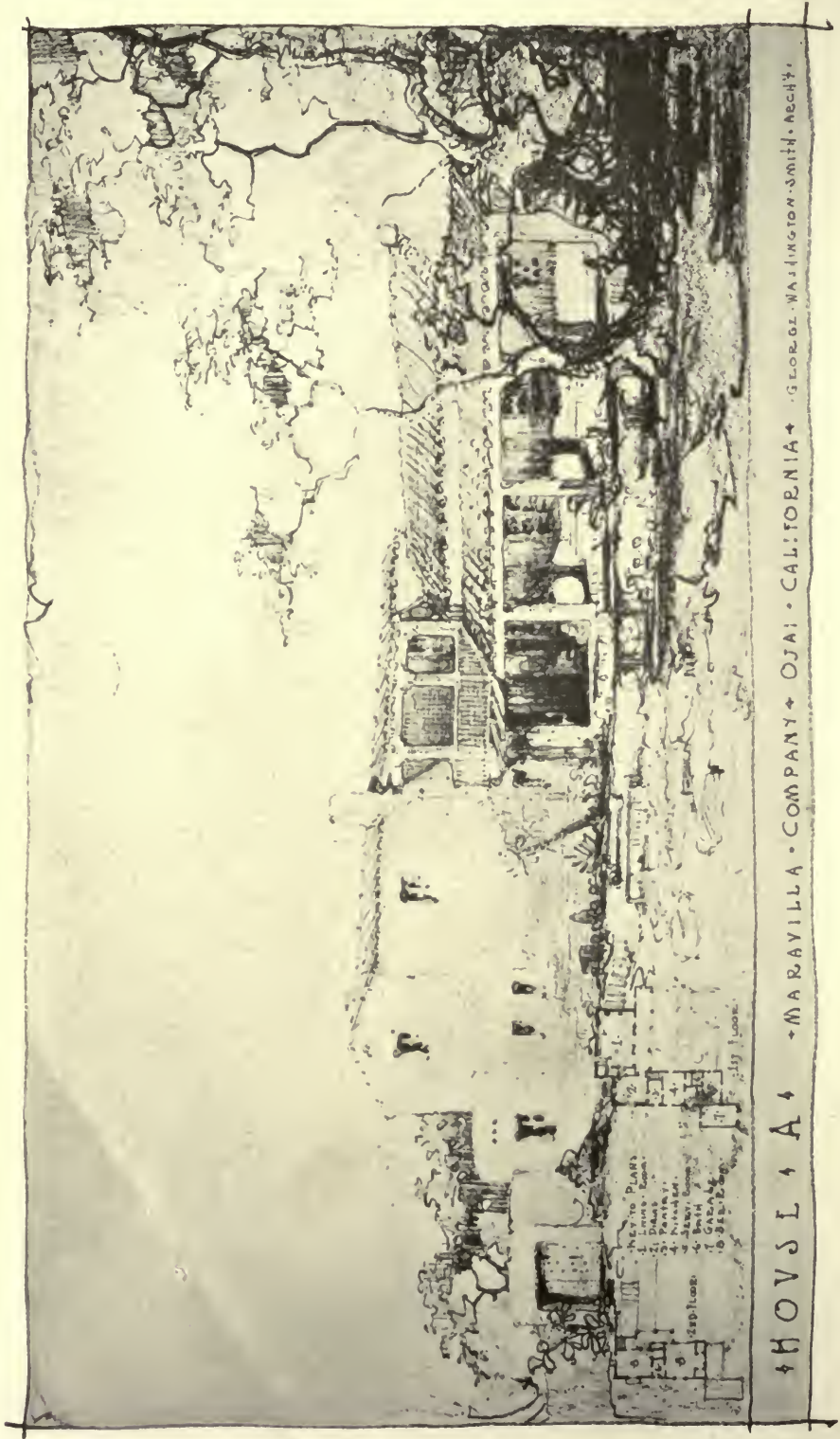


HALL, RESIDENCE OF W. S. MORSE, ESQ., PASADENA, CAL.

Reginald D. Johnson, Architect.



LOGGIA DETAIL, "A" HOUSE, MARAVILLA
CO., OJAI, SANTA BARBARA, CAL.
GEORGE WASHINGTON SMITH, ARCHITECT.



HOVELLA MARAVILLA COMPANY OJAI CALIFORNIA GEORGE WASHINGTON SMITH ARCHT

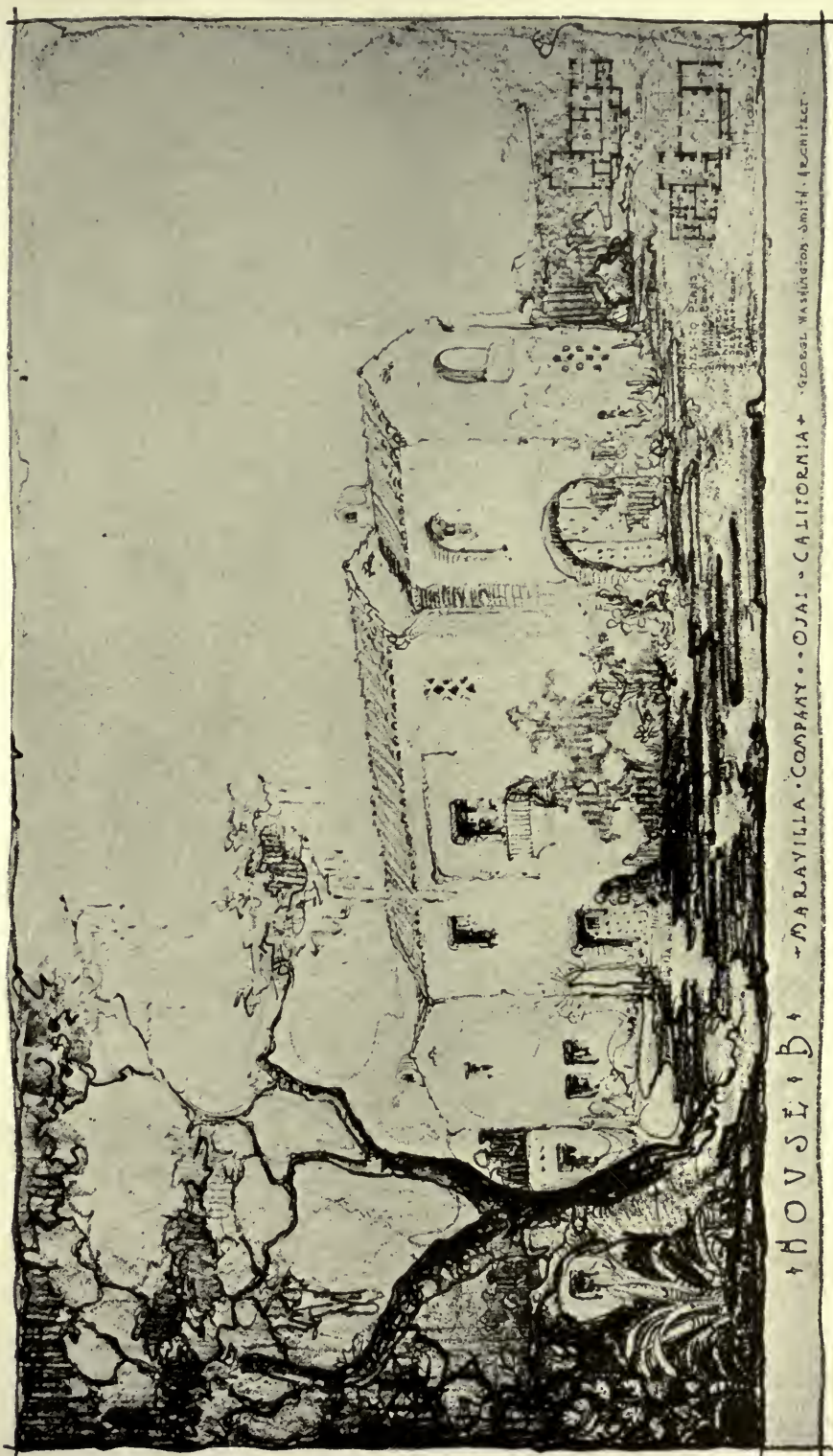
KEY TO PLANS
 1. Dining Room
 2. Pantry
 3. Kitchen
 4. Bath
 5. Garage
 6. Stables
 7. Horse Room
 8. Stable
 9. Stable
 10. Stable



NORTH FAÇADE, "B" HOUSE, MARAVILLA
CO., OJAI, SANTA BARBARA, CAL.
GEORGE WASHINGTON SMITH, ARCHITECT.



SOUTH FACADE, "B" HOUSE, MARAVILLA
CO., OJAI, SANTA BARBARA, CAL.
GEORGE WASHINGTON SMITH, ARCHITECT.



H O V S L I D • MARAVILLA COMPANY • OJAI • CALIFORNIA • GLOBAL WASHINGTON SMITH ARCHITECT



ENTRANCE DETAIL, "B" HOUSE, MARAVILLA
CO., OJAI, SANTA BARBARA, CAL.
GEORGE WASHINGTON SMITH, ARCHITECT.



The Sanity of Hepplewhite

Now that so much of our furniture for modern homes is being designed and built in the English period styles, a critical, comparative estimate of the merits of those styles becomes a matter of ordi-

nary business prudence to the purchaser. With the styles of three centuries to choose from, the discriminative faculty must needs be exercised. In cases where architecture determines the furniture style in advance, the choice is easy, but not so for the average householder.

While the Elizabethan, Jacobean, William and Mary, and Queen Anne styles are receiving increasing attention from manufacturers, the styles of the Georgian period have by no means been abandoned. Indeed, there is plenty of evidence that American purchasers still harbor a preference for eighteenth century mahogany. It is for this reason that a critical and appreciative study of the work of the Georgian cabinet makers is especially timely.

Thomas Chippendale has long enjoyed the reputation of being the greatest of the Georgian designers and craftsmen, and for many years the American purchaser has believed that in owning a Chippendale chair or a worthy reproduction thereof he has secured the very best that the past has to offer him. It is difficult to unsettle so long established a belief. It is, indeed, based upon a solid foundation, for at his best Chippendale was a master. But not all of his chairs had delicately fashioned backs of satisfying proportions and graceful cabriole legs. Some of his chairs were coarse and clumsy, and his straight, sturdy, square leg is usually quite lacking in style or grace. Any carpenter could have made it. Moreover, Chippendale was prone to slip into the fantastic and to mix his Chinese, French, and Gothic elements until the hybrid resultant will hardly stand the test of the analytical criticism of the modern expert.

Sheraton, again, has always been the artist's
three hundred forty-five

artist. The simple chastity and perfect proportion and workmanship of his best designs, while they lack the popular appeal of the more showy Chippendale, have always held the highest place in the estimation of the connoisseur.

Between these two lies Hepplewhite, always mentioned with them, always given a place with the Great Three, but often failing to receive his full meed of appreciation. Hepplewhite was not a greater artist than Chippendale or Sheraton. But there is an element in his work that should receive fuller recognition and that should make his designs more popular in modern homes—the element of sanity.

Both Chippendale and Sheraton went oft astray after false gods, as did Manwaring and the other lesser lights. Hepplewhite, while he never reached the heights of excellence to which the genius of Chippendale and Sheraton occasionally brought them, never allowed himself to be lured by mere novelty or to depart from the orthodox canons of design into the field of the bizarre. He was not a classic scholar like Robert Adam, nor did he ever quite achieve the perfection of delicacy which distinguishes Sheraton. On the other hand, he combined a true sense of design with balance, restraint, and common sense, and he avoided the ultra-fantastic of which neither Chippendale nor Sheraton were guiltless. He was more thoroughly British than they—a straightforward business man rather than an eccentric artist, who yet knew how to produce original ideas of standard excellence.

R. S. Clouston, the English authority, says: "I am unable to rank Hepplewhite with Chippendale on the one side, or Sheraton on the other, either in construction or design, yet there is an indefinable charm about his work, even when faulty by rule, which, like some old song, touches a higher and more human note than can be attained by mere correctness."

I can hardly agree with Mr. Clouston's disparagement of Hepplewhite's "correctness," for he was no careless designer, and he knew his trade. If the author had substituted the word

"novelty" or even "originality" for "correctness," the point would have been better taken. It is what Mr. Clouston calls the "human note" in Hepplewhite's work that appeals to us—that domestic element that all good household furniture should possess. That is what I mean by the sanity of Hepplewhite's designs. They can be counted on to satisfy, to react pleasantly on the senses, to wear well, and to serve their utilitarian purpose with elegance and a measure of distinction.

Thomas Chippendale's biography is the story of a brilliant success; Thomas Sheraton's that of a somewhat erratic and embittered genius with lofty ideals. George Hepplewhite has no biography. Not enough is known about his life and personality to furnish even a brief notice for the "National Dictionary of Biography." Perhaps he was a very commonplace man, with no outstanding qualities worthy of notice and with a career devoid of adventure. Even that somehow suggests sanity. And his work was not commonplace. That forms his true biography.

Of his birthplace and the date we have no record. It is said that he learned his trade with the Gillows at Lancaster and that later he started in business for himself, appearing at length with a goodly establishment in Redcross Street, Parish of St. Giles, Cripplegate. He probably died in 1786, for the records show that on June 27 of that year, the administration of his estate was granted to his widow, Alice Hepplewhite. He left a profitable cabinet-making business and property of considerable value. After his death the business was carried on by his widow and partners, trading as A. Hepplewhite & Co., and it is their name which appears on his posthumous book of de-



signs. The first edition of "The Cabinet-Maker and Upholsterer's Guide" was published in 1788, the second in 1789, and the third in 1794. It was a businesslike book for the trade and the most notable of several similar works published by various cabinet makers at about the same time. The designs contained therein are not of uniform excellence, but they are none of them extreme in type, and it is safe to say that Hepplewhite's own furniture was better than that shown in his book.

Hepplewhite was probably less an original creator of styles than the best living exponent of the fashions of his day. Those fashions developed naturally, assisted by the classic interest fostered by the Adam brothers. After Chippendale, whose books were published in the fifties, came a number of imitators of inferior ability—Thomas Johnson, Matthias Lock, Robert Manwaring, Ince & Mayhew, and others. Of these, Manwaring exerted possibly the widest influence. They all followed Chippendale to a greater or less degree, or at least their designs followed the same style tendencies, not omitting the extravagances. That was the fashion of the day, Chippendale being only one, though the foremost one, who made it his business to follow it.

Then, more or less gradually, the fashions changed. The public was getting tired of the curves and excrescences of Chippendale's disciples. Robert Adam's chief activity as an architect and designer came between 1765 and 1780, and though he was more fully responsible for Sheraton's style than for Hepplewhite's, his influence on the general popular taste was marked. The Gillows began making a more formal, more restrained line of furniture and during the eighties the work of other designers and cabinet makers came into vogue.



George Hepplewhite was one of these. He founded no school, perhaps, but he produced the best designs that the fashion of the decade demanded. His first book, "The Cabinet Maker's London Book of Prices," was not published until 1788, but Hepplewhite had undoubtedly been making furniture in this style for some years before. Then again the fashion changed to the styles of Sheraton and the Adam-classic school.

Just how far Hepplewhite was a leader and how far a follower in the matter of style development it is difficult and, indeed, unnecessary to decide. Others made furniture in the now so-called Hepplewhite style. It was the style of a period rather than of one man, perhaps. But Hepplewhite was always just a little in advance of his day, just a little stronger than his contemporaries. His work bears the touch of a master hand. He was an individual, not an intangible influence. His was a personality that unquestionably impressed itself on the taste of his day.

Like Chippendale, Hepplewhite borrowed freely, both from France and from England. He and Sheraton were fortunate in coming after furniture-making had been established as a profitable business as well as one of the arts, and there was a mass of material for them to draw upon.

Hepplewhite did not follow the classic delicacy of Adam in all its purity, but it was to Adam that he owed his greatest debt. It was apparently Hepplewhite's aim to break away from the Chippendale tradition and to combine elegance with lightness and restraint, and in the Adam introductions he found the most available material for this. From Adam he took the tapering leg which he did most to popularize, the oval chair back, and painted ornament. He nevertheless did not scorn, as did Sheraton, to retain such of the Chippendale manner as seemed to him good, though he was gradually weaned from it. At the outset



he abandoned most of the curves of the Chippendale-Louis XV type.

Though not a thorough-going classicist, Hepplewhite absorbed much of the classic feeling. His style may be said to possess classic refinement without severity. It shows the influence of the Louis XVI, like all the English styles of the period.

The popular taste at this time was veering away from solid mahogany, and lighter woods, such as satinwood, tulip wood, chestnut, sycamore, and stained woods were coming into vogue, each being used to a considerable extent for painted furniture. Hepplewhite made use of this diversity of rare and decorative woods in his inlay, but he clung to mahogany far more consistently than did Sheraton, and in this he again displayed his solid common sense. For however beautiful satinwood furniture may be in itself, it lacks that quiet charm for domestic purposes that men have always found in mahogany. He used satinwood and rosewood moderately to meet special demands. His chairs were mostly solid mahogany, his sideboards sometimes veneered. He occasionally painted or japanned his furniture after the Adam manner, but he seemed to realize the lack of durability in finish of this

sort and never followed this lead to the extent that Sheraton did.

Hepplewhite, though not a master carver like Chippendale, used carving with greater restraint and most effectively. His low relief carving of flutes, wheat ears, etc., was exceptionally good. It was in inlay, however, that he excelled, and he produced some of the most refined and tasteful inlay to be found on English furniture. It never verged upon the florid exuberance of Dutch marquetry. On the doors of wardrobes and the fronts of





drawers he used a veneer of the beautiful curl mahogany that came into favor about 1760, while on the fronts of his solid mahogany tables, sideboards, and bookcases he substituted for carving an inlay of low-toned contrasting woods in simple patterns. The legs of his tables and sideboards were frequently ornamented with delicate vertical patterns in sycamore and tulip wood. He was fond of using narrow lines and bands, herringbone patterns, the meander pattern, and the Greek fret, while the wheat ear appears constantly in his carving and inlay. His finest and most elaborate inlaid work, perhaps, is to be found on his table tops.

In the matter of furniture legs, Hepplewhite's work marked a distinct departure from Chippendale. The cabriole leg he abandoned entirely. He also departed from Chippendale's square leg with parallel sides and introduced the tapering square leg, usually ending in the spade foot which added a needed look of strength. He also used to some extent the turned leg, not to be found in Chippendale's work. On some of his larger pieces he used the short bracket foot. His favorite, however, was the square, tapering shaft.

Hepplewhite's furniture was unequal in quality, but his chairs, sofas, sideboards, and bedroom furniture were among the best ever

made in England, and he is remembered chiefly for them. Modern designers of chairs probably owe more to Hepplewhite than to any other one designer. Like Chippendale, he devoted his best efforts to the chair. Hepplewhite chairs are refined and elegant in proportions and are almost always stronger than they appear. The designs are structurally sound. Though never commonplace, they are always sane and practical.

Hepplewhite's chairs are best known for their shield-shaped, heart-shaped, or oval backs and their straight, square, tapering legs, often ending in the spade foot, though he also designed chairs with rectangular backs, both pierced and solid, and chairs with turned legs. The typical Hepplewhite chair back is a thing of rare beauty of curve and proportion. It was rarely upholstered, but formed an open frame surrounding a central design, carved and pierced, which exhibited an infinite variety of graceful detail. These included curving upright bars, often spreading fan-fashion, and single pierced central splats, nearly always delicate and exquisitely carved in low relief. The designs include simple flutings, classic details, representations of urns with drapery or festoons, the husks and ears of wheat, and the three feathers of the Prince of Wales.

The shape of the shield-back varies from

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round to pointed, but the top is nearly always a graceful, swelling curve, sometimes called camelback. The shield rests on upright supports at the sides, which blend gently with the curve of the back. It is said that the Gillows may have originated the shield-back, but Hepplewhite was at least its most consistent and successful user, and most of its details were certainly original with him.

Hepplewhite's arm chairs were, for the most part, similar to his side chairs, with the arms attached half way up the back and curving with a graceful sweep throughout their length, with all harsh angles avoided. His chair seats were most often upholstered in colored and figured haircloth, held in place by straight or waving rows of brass-headed nails. These chairs were generally of solid mahogany, depending for decorative effect on line and carving. Occasionally, however, he used a satinwood inlay, and a few of his later chairs were japanned or painted with musical trophies, floral motifs, etc.—elegant and pleasing but not permanent.

Hepplewhite's sofas were graceful, their general treatment suggesting Louis XVI. They were usually upholstered, with serpentine, convex curved, or straight backs. His only open-back design was the bar-back or four-shield sofa, its back like a row of chair backs. He also designed window seats, similar to Adam's Louis XVI in type, elegant in their simplicity, with no backs and with the ends or arms rolling gracefully outward.

Next to his chairs, Hepplewhite's fame rests largely on his sideboards. He did much to develop this article of furniture for use and beauty. Adam and others had designed serving-tables, flanked by pedestals used as cellarettes and plate warmers and surmounted by hot-water urns. Knife-boxes were used on the tables and a girandole often suspended above. Hepplewhite (or Shearer, of whom I shall speak presently) combined these into one piece. Cupboards and drawers were first built into the ends of the table to contain silver, and the knife-boxes were abandoned. Then the table and pedestals were united in a single piece.

Hepplewhite's sideboards are distinguished by their beautiful serpentine fronts. These differ from Sheraton's in that the end curves are concave, while Sheraton's are convex. There are four legs in front and two or four in back. These sideboards were often embellished with fine inlay of satinwood, tulip wood, sycamore, ebony, rosewood, maple, yew, holly, etc., with little or no carving.

As a matter of fact, however, credit for the introduction of the sideboard is due less to Hepplewhite than to his friend and collaborator

Thomas Shearer. Even less is known about Shearer than about Hepplewhite. He may have been employed by the latter. At all events, his fame was overshadowed by that of Hepplewhite. He was very likely Hepplewhite's leading designer, and it would be hard to say how much of the development of the Hepplewhite style was due to him. Of the designs in "The Cabinet-Maker's London Book of Prices and Designs," Shearer signed his name to eighteen plates, Hepplewhite to six, and W. Casement to five. In this book, over Shearer's signature, appears the sideboard which Hepplewhite further developed. Shearer's sideboard was admirable and he was also strong in bookcases and small tables. He was also responsible for the screen writing-case. We have no evidence that Shearer designed chairs, apparently leaving that field to Hepplewhite. Both men designed bureau bookcases, wardrobes, writing and dressing tables, ladies' work tables, etc. They appear to have worked together with good judgment and the best of results.

Shearer had a keen eye for simplicity of design and delicacy of proportion. Some of his pieces are unsurpassed for dainty and slender elegance. His use of inlay was graceful and restrained, and no one ever used the curve to better purpose. His ingenuity of arrangement was often equal to Sheraton's. In general he was inferior to Hepplewhite only in carving and the use of ornament.

Hepplewhite's bedroom furniture was charming, with beds, wardrobes, commodes, dressing tables, etc., more complete, more practical, and less heavy than they had been previously. He designed a variety of exquisite dressing tables, many of them with the serpentine front and with heart-shaped mirrors. His bedsteads were handsome, with carved and reeded pillars, and his wardrobe supplanted the old highboy.

Hepplewhite's small tables are always a joy, no less than Sheraton's. There were Pembroke tables with two hinged leaves, card tables, and pier tables with semi-circular tops. His desk-and-bookcase was a noteworthy piece, though perhaps rather severe.

Hepplewhite, for all our lack of definite knowledge about him, must have been a man not without force, imagination, originality, and artistic resources. He had an eye sensitive to design, and he must be given credit for the general high level of his work in line, proportion, ornament, and workmanship. Lightness, delicacy, grace, and refinement characterize his style, and that balance and restraint that I have attributed to his innate sanity. He never fell into those pitfalls which the popular demand for novelty ever sets before a designer.

He was a practical cabinet maker of independent ideas rather than a man of genius, and he exhibited a better balanced mind than either Chippendale or Sheraton.

These things being so, it is no disparagement to the genius of Chippendale or Sheraton to offer the suggestion that, for purposes of modern reproduction, Hepplewhite is the safer lead to follow. His designs, his style, seem admirably suited to modern uses. In the modern home of the ordinary type it would be difficult to improve upon a Hepplewhite dining-room, with shield-back chairs and serpentine sideboard.

The Hepplewhite sewing-room or boudoir, or the Hepplewhite bedroom are hardly less satisfactory. There is beauty and elegance in this style, practical usefulness, a lack of dangerous decorative elements, and that imponderable quality that gives permanence of satisfaction—all of which testifies to the sanity of Hepplewhite.

WALTER A. DYER.

**Recent Work by
Ruth Dean,
Landscape
Architect**

One of the interesting developments in recent American design is the prominent part which women have played in landscape architecture. Mr. Royal Cortissoz, in commenting on the exhibition of the Architectural League of 1921, noted that interesting fact, and spoke especially of the work of Mrs. Shipman, Miss Coffin and Miss Dean. Miss Dean, after a course in the University of Chicago, worked for a long time in the office of Jens Jensen of Chicago and followed this up by working in the office of other landscape architects and architects—feeling that a knowledge of architecture from the point of view of the architect was essential to the development of the proper setting for architecture. Her independent work from the start has been almost uniformly successful in this respect and, due to her training, she has avoided the usual controversy between the landscape architect and architect as to where the work of one begins and the other stops. She is a little better able to think in the terms of the architect than are many landscape architects and has a just appreciation of the fact that the purpose of landscape work is twofold; that it must not only be beautiful in itself, but must also afford a proper setting for a house, or rather furnish an intermediate step between the purely artificial structure of the house and the native character of the surroundings.

The success of Miss Dean's work has been as much due to her knowledge of what she had

to work with, as it has been to her architectural knowledge, and probably none of the landscape architects practicing today can show more successful planting or more careful and harmonious combination of art with nature than that illustrated in these pictures.

Take, for example, the illustration of the garden wall for Mrs. D. E. Pomeroy. The admirable quality of the stucco of this wall and of the simple brick capping is very greatly enhanced by the delicacy of the foliage forms which grow in front of it and fall over it in such apparently unstudied fashion. It has long been the habit either to treat walls with vines which tend to cover up large portions of the surface, or to use them as a background for more or less regular planting. There a wall is partially obscured, partially revealed in a way which adds to the interest in the architectural feature, while still permitting it to serve as a background or setting for the planting. Similar intelligent choice of plant material in combination with structural work is evidenced in the photograph of the pool in the Prosser garden. The mason work surrounding the pool, the walls and steps, has been so carefully thought out that it appears entirely unstudied, and especially because it embodies forms of foliage which not only combine pleasantly with each other but are also entirely appropriate to their positions. It must not be thought that results of this kind are obtained haphazard or that there is any set rule by which iris planted beside a pool or high bush cranberry behind a wall will inevitably pro-



GARDEN OF MRS. DANIEL POMEROY, ENGLEWOOD, N. J.

Ruth Dean, Landscape Architect.

three hundred fifty



GARDEN OF ARTHUR SCHIEREN, ESQ., GREAT NECK, L. I.
Ruth Dean, Landscape Architect.



GARDEN OF MRS. SEWARD PROSSER, ENGLE-
WOOD, N. J.
Ruth Dean, Landscape Architect.



GARDEN OF ARTHUR SCHIEREN, ESQ., GREAT
NECK, L. I.
Ruth Dean, Landscape Architect.

duce the proper result, any more than white painted walls and green blinds will make a Colonial house. The proportion of objects, one to the other, and the relative scales of the foliage and the colors of the plants are susceptible of infinite variations, no two of which will be similar in effect and no two of which will be equally appropriate to any positions.

The architectural features in garden work, walls, gates, arbors and garden houses of various kinds are always critical points in the contact between the architect and the landscape architect. Each feels that they justly come within his province; too often the architect is prone to regard these details with the single thought that they must be appropriate adjuncts to the building, and the landscape architect to feel that they must be appropriate to the setting regardless of their harmony to the architecture of the building itself.

Our landscape architects have been rather divided into two classes; those who follow the form and manner of the Italian precedent and those who endeavor to work along entirely naturalistic lines in an endeavor to produce the happiest of nature's own landscape work. Miss Dean appears to follow neither one nor the other of these classes, but to plan around axes and to develop vistas in accordance with the Italian manner, and to treat the planting itself in a rather freer way than the Italian style. This appears to be the method which the best of our American landscape architects have employed, and it may be that just as our architects are by a combination of old precedents producing work which is distinctly American in quality, so our landscape architects, and among them Miss Dean, not the least, are developing a school of landscape architecture which is better adapted to our needs than the traditional European styles or than the work of the purely naturalistic designers.

RUSSELL F. WHITEHEAD.

The Modern Fireplace and Some of Its Problems

Starting with the well established fact that a great many fireplaces have a tendency to allow smoke from the fire to escape into the room instead of carrying it up through the flue, we note the further fact that this tendency, as a rule, appears most pronounced on damp and chilly days in the fall, before the heating apparatus has been started and after it has been allowed to go out.

By the rules governing the design and construction of open fireplaces as presented in handbooks and the professional press, a fireplace of a certain width requires a certain corresponding height, depth, throat, and size of

flue, calculated according to a fixed scale.

The correctness of these rules, or at least their general applicability, is, I think, very doubtful and the different dimensions indicated in many cases do not coincide with those which I should adopt in the light of my own experience and observation.

Moreover, a great many of the old fireplaces both here and in other countries, which have an excellent draught, certainly are not designed according to our handbook rules, while, especially for larger fireplaces, the flues indicated by the rules seem much too large.

However, my chief objection to the rules referred to (which in all likelihood represent common practice) is their disregard of what seems to be the main point of the problem. Evidence of this was furnished when fireplaces properly designed under the rules and well constructed, actually *did* smoke in spite of the fact that the rules were all followed.

On the other hand, I gradually became convinced that the design of the fireplace throat and the insertion of a smoke chamber above it were of far greater importance than any of the dimensions of the fireplace itself, including the extra depth which many insist on.

In order to establish reliable data on fireplace design and construction it is necessary to study the fire itself as it appears at starting and during further progress until finally allowed to die out. Furthermore, one must analyze the air currents feeding the fire, those produced by the fire itself, the escaping smoke and other gaseous products of combustion as well as air currents in the room—for instance, from stair wells, etc., which I have often observed as main or contributory causes of smoking fireplaces.

The whole problem being generally one of dynamics of gases, it is essential that we ascertain the strength and direction of the different forces actually at work.

The problem of producing an open fireplace which draws well without smoking, means, then, to design a fireplace and flue with a draught sufficient to carry off the smoke and other products of combustion in spite of the adverse currents which nearly always exist—at least to a certain extent. Most of our houses have large doors, generally open; they have large open stairways leading to upper stories, where doors and windows also are frequently left open, and the air currents up the stair wells in particular are likely to be both strong and of considerable volume.

The general proposition of draught in an open fireplace and flue is illustrated in Figure I. Cold air from the leaks around doors and windows as well as the air cooled by contact with walls and windows, becoming heavier by

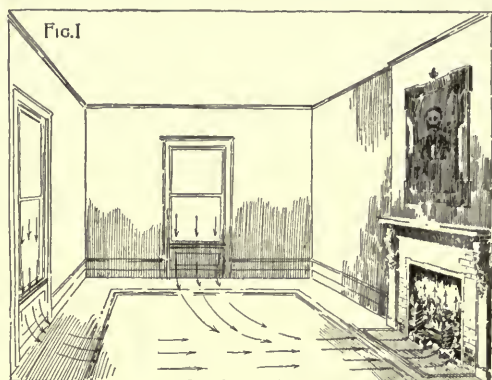
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cooling, drops to the floor. When a fire is started in the fireplace, a current of air warmed by the fire along with the gaseous products of combustion, ascends towards the open flue, leaving a partial vacuum underneath the fire into which the cool air along the floor is drawn.

The size and intensity of the fire and not the size of the fireplace opening determine its lifting power, and our main concern is to guide this upward air current with the accompanying smoke into the flue instead of into the room.

A large fireplace will permit a larger fire than a smaller one, and the flue must be large enough in all cases to carry off the gases generated by the combustion. We must also reckon with the comparatively slow combustion in an open fireplace as compared with a stove or boiler, and the considerable amount of smoke generated at the starting of the fire. On the other hand, the capacity of a flue depends upon the velocity of the upward draughts quite as much as upon the area of the cross section.

As a matter of fact, many fireplaces of the *open throat design* (Figure II), which is the common one, fail to draw and throw the smoke back into the room. The reason in most cases is probably that the open throat interposes no



bar to the rolling back of the smoke when meeting the cold air in the flue, especially if the latter is a large one, while the lifting power of the heated gases of combustion, especially at the starting of the fire, and when it is burning low, proves insufficient to produce a proper draught. Enlarging the flue aggravates the evil instead of curing it.

Moreover, when fireplaces of this design draw well, and especially when the flue is large, a very considerable body of air must necessarily be rushing from the room through

FIG. II.

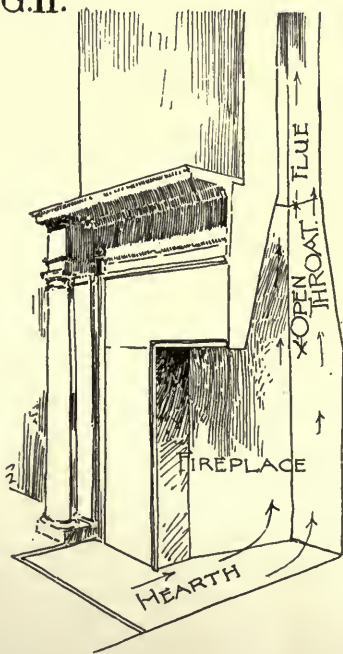
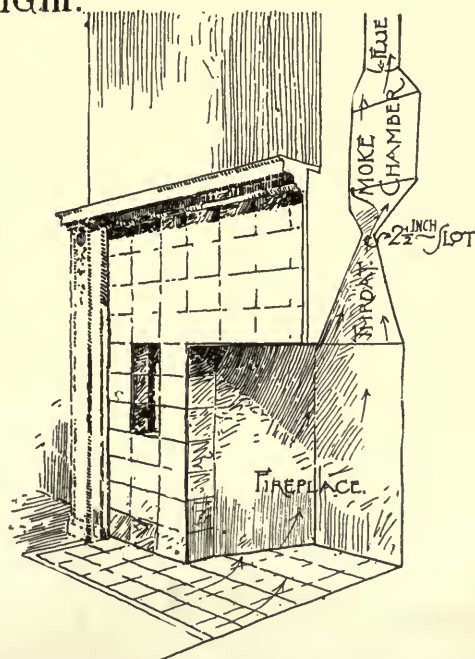
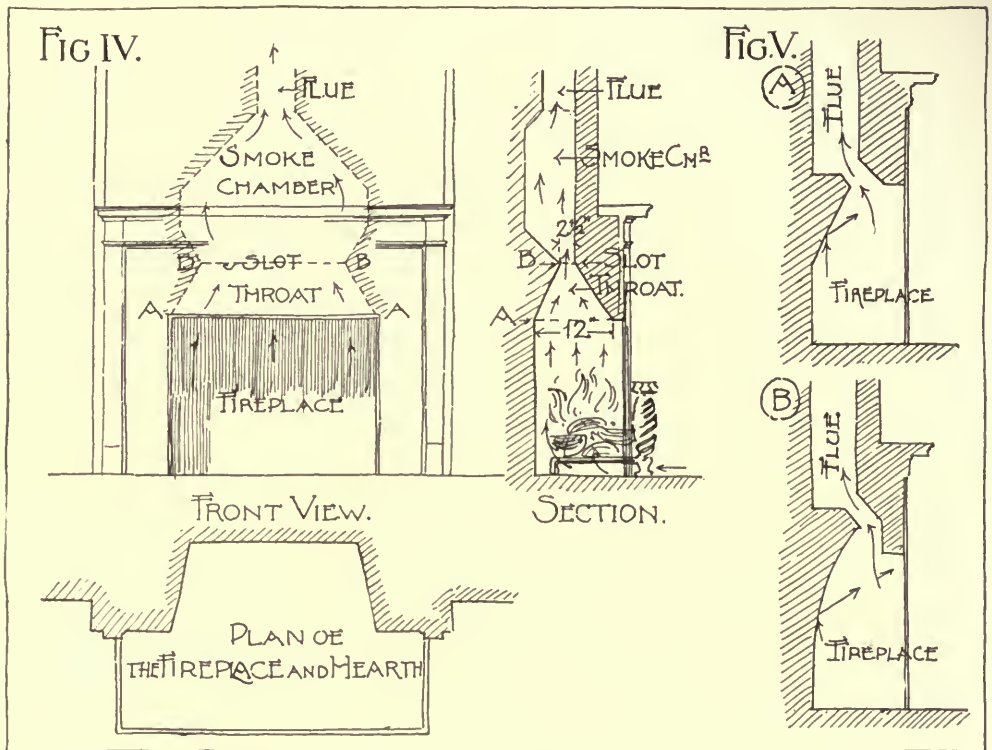


FIG. III.





the fireplace and up the flue. A person sitting in front of such a fire will find it warm at his head, but pretty cold and very draughty about his feet.

Great stress is laid by some authorities on arranging a comparatively narrow throat. This would seem to imply a considerable widening immediately above the throat, which really means a smoke chamber. Possibly the importance of this widening may have been underestimated.

A tapering throat immediately above the fire would necessarily cause a very considerable increase in the velocity of the gases of combustion, and an ample smoke chamber immediately above the throat would collect such a body of heated gases that a lifting force of very considerable power would be produced almost immediately. This body of heated gases would then start a strong draught in the flue, and, judging from my own experience, this seems to be the fact. A design on the lines indicated is shown in Figure III and Figure IV.

It will also be noticed that this velocity would be attained without requiring any increase in the body of air necessary to produce the draught, and therefore without making it uncomfortably draughty in front of the fire.

Conversely, the question may properly be raised as to whether a large flue would not tend to produce unpleasant draughts in front of the fire.

Assuming for the purpose of illustration, an open fireplace say 36" wide and 2 feet, 4" high as shown in the accompanying sketch (Figure V), we have, when a fire is burning on the fireplace, the heated air, smoke, and other products of combustion ascending towards the open flue at a velocity equal to V at the point A, being the top of the fireplace opening. Approximately, the clear horizontal opening at A equals $36" \times 12"$ or 432 square inches.

If a throat is formed by inclining the front and back surfaces at an angle of approximately 60 degrees to the horizontal, and the sides at a slight incline to the vertical until the four sides form a slot $2\frac{1}{2} \times 28"$, then the area of the slot is equal to 70 square inches at B. The area of the horizontal opening at A is thus approximately one-sixth of the area of the opening at A.

The effect of this reduction, according to the laws of dynamics should be to increase the velocity of the ascending gases, from V at A to $6V$ at B.

Assuming, further, that a large chamber is arranged immediately above the slot B, the

smoke will pass into this chamber at a velocity of 6V. The velocity of the rising smoke is thus gradually increased like the velocity of water when forced through a nozzle.

We must bear in mind, however, that the velocities we here are dealing with are low, and the surfaces of the fireplace necessarily rough, causing considerable friction. The increase in velocity is probably much less than the theoretical one above calculated. For this reason the throat should not be too high, and I have suggested inclining the front and back at an angle of approximately 60 degrees to the horizontal, leaving a slot $2\frac{1}{2}$ " wide.

If a fireplace designed and constructed as described fails to draw properly, and the flue is tested, found clear and not subject to down-draughts caused by surrounding buildings, then the cause of the trouble is likely to be found in some strong current of air in the room itself, and most frequently from open stairways.

If, however, the failure is due to down draughts from surrounding buildings, they may generally be detected by testing the flue with burning paper at different times when the wind and other atmospheric conditions differ, and keeping records of the observations.

When the wind is reflected from large surfaces, for instance, of walls and roofs, partial vacuums are created which again cause air currents, of which some may have a direction often nearly opposite to that of the prevailing wind itself and the resulting effects on chimney draughts are often very puzzling.

No part of the brickwork of a building requires more careful watching than that of the fireplaces and flues, especially since the use of tile lined flues became common. Bends in the pipe are often carelessly made, some with joints left open, others obstructed by parging mortar, and when the "topping out" is finished, the bricks and mortar remaining on the scaffold are only too often dumped down the flue and found sticking there when the flue is tested.

The open spaces between a round flue and the brickwork are filled with brick and mortar, and it is therefore to be preferred to a square flue because the joints are more likely to be tight—besides, it is a better form generally.

The best material for fireplace and throat linings is firebrick or similar materials which resist high temperatures without cracking and scaling off. Cast iron requires an airspace behind it.

The back of the fireplace is occasionally designed on a curved or broken line, the break being arranged some 15" above the hearth (Figure V, A and B).

While I have never tried this design in
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practice, I am inclined to consider it unnecessary and ugly. It may even have a tendency to throw the smoke past the throat and into the room, as indicated on the sketch.

Lord Rumford warns especially against too large fireplaces, but occasionally they are insisted on, and the warning must be disregarded.

In one such instance, when altering an old residence, I found two small flues some two or three feet apart, and connected both to the smoke chamber with satisfactory results. Yet their combined cross-sections represented a mere fraction of the area indicated by the handbook rules.

The fireplace should, for architectural reasons, be so placed as to provide space for the proper placing of furniture, and out of the lines of travel indicated for the ordinary routine of domestic life. It should also be located as far away from doors and windows as possible and especially remote from stair wells where there always are strong draughts, especially when doors are left open on the upper floors. An inside wall is undoubtedly best for a fireplace, and if an outside wall for other reasons is selected, then a southerly or westerly exposure seems to be preferable.

On the upper floors the choice of location for the fireplace is necessarily limited, because the chimneys are placed mainly according to the requirements of the main rooms on the first floor. However, as fireplaces in bedrooms are generally expected to serve mainly for general heating and ventilation purposes, their precise location is, as a rule, less important.

As an added precaution towards insuring a perfect draught in fireplaces, the flue may be located in any chimney likely to be kept warm during the cold season by a boiler flue or the like.

Where back draughts in flues are caused by the nearness of chimneys to high buildings, large sloping roofs and other unfavorable surroundings, there is, as a general rule, no other cure than carrying the chimney up beyond the reach of the objectionable air currents.

While fireplaces may be considered useful as adjuncts to the regular heating apparatus, and for the purpose of removing the chill from the atmosphere of the living rooms in the spring and fall of the year, they are also important as means of ventilation. For the proper functioning of any indirect system of heating, the fireplace is indeed almost indispensable, while from a sanitary point of view, the importance of fireplace ventilation cannot be too strongly emphasized, especially since the metallic weatherstrip seems to threaten us with airtight homes.

We have only to consider the cubic contents of an ordinary room in connection with the

fact that the hourly requirement of fresh air for an adult is from 3,500 to 4,000 cubic feet in order to realize the danger of oxygen starvation to a very large portion of our population. No wonder sleeping porch advocates are able to show good results.

In conclusion, I cannot deny myself the pleasure of mentioning a case of confirmatory evidence as to the efficacy of smoke chambers which was given me by Mr. F. A. Williamson, a technical expert to whom I happened to show the manuscript of this article.

Mr. Williamson mentions several cases in which the smoke pipes of boilers had been connected to flues of insufficient size, with the result that the efficiency of the boiler had been seriously reduced.

By removing part of the masonry and building a smoke chamber of sufficient size where the smoke pipe enters the flue, Mr. Williamson succeeded in obtaining the proper draft in all cases where the flue was otherwise reasonably straight and true, and properly constructed.

ARNE DEHLI.

**Viollet le Duc's
observations and
deductions on
Medieval
Polychromy**

(Continued)

Viollet le Duc lays constant stress on the value of tradition in shop-practice during the Middle Ages. He points out that results were uniformly produced, of such excellence that the majority were worthy of attribution to men of a mental calibre that is rarely duplicated in a century. This was undoubtedly the result of the perpetuation of progressive experience engendered through the apprentice system. He refers to his discovery of traces of polychromy in lime-washed village churches, which revealed a degree of artistic discrimination equalling that displayed in the coloring of the Sainte Chapelle, though the former were probably decorated by the painters of the locality, and the latter by cultured monks.

There is little evidence in his writings of scientific investigation on the subject of color, which he treats exclusively from the archaeological and decorative angles. This is particularly noticeable in his remarks upon chromatic classification: he describes red, blue and yellow, as "positive" agents in decorative effect, and black and white as "negative." With apparent ignorance of Sir Isaac Newton's discoveries, he describes white as "colorless" light, and black as absence of light. He gives red, blue and yellow as the only primaries, for the reason

that these are the bases from which composite tints are produced in the mixing of pigments; such inaccuracies do not, however, depreciate the value of his writings or diminish our interest in or appreciation of the extremely instructive views which he propounds on the subject of decorative effect; one must remember that he makes no pretension to a scientific attitude.

Viollet le Duc observes that black and white were used in the Middle Ages to raise or lower the general tone of colors in groups; that is to say, the addition of black to a color scheme would tend to raise apparent tone values, whereas white would lower them, by reason of the contrasting tone values of those colors. With regard to black and white, which are the two most debatable points in the scientist's chromatic plan, he makes the rather wild statement that white is a radiant color, but that black is a reagent which stimulates radiation in other colors.

The great interest which he displayed in architectural polychromy throughout his career, was actuated in a great measure through the theorist's enthusiasm, rather than that of the colorist. It is impossible to form an equable appraisal of the true value of the color expressions in the minor arts of a comparatively recent generation, owing to the invariable divergence in sympathies which prejudice the succeeding generation; if we compare the color quality of the decorations which Viollet le Duc has left with good examples of decorative coloring of almost any period, there is no doubt that he was deficient in what is termed color sense.

In a preceding number I commented upon a method of his whereby certain colors were given numerical denominations, presumably corresponding to their radiant properties; their allotment to ornamental spaces of varying areas was governed accordingly. To recapitulate, yellow and red being relatively valued as 1 and 2, they were allotted to ornamental spaces of correspondingly proportioned areas in inverse order; that is to say, the less radiant color was placed upon the larger area, and the more radiant on the smaller area; but when blue, for instance, was added, the complications began. To maintain the proportional method it became necessary either to increase the red and yellow areas, or to introduce new tones of the requisite denominations, such as green or purple, in the proportions respectively of 1/4 and 1/5 of the total area. The modern system of art education, being the antithesis of those

which attempt to regulate any phase of imaginative effect, does not predispose us to regard with favor a plan which presumes to construct color effect by geometry; but, if we give the Gothic plan impartial consideration, is it not possible that in the comparatively simple problem of pattern coloring, some such systematic method of procedure will accomplish those chromatic adjustments which we strive to bring about blindly through following the impulses of an erratic color sense? The fact, which Viollet le Duc vouches for, that this method constituted the fundamental principle of color adjustment in architectural polychromy throughout the Gothic periods, compels our serious consideration. The men of that period were evidently better able to regard colors in their true light than we; they considered colors as specific decorative forces, to be administered most carefully in definite proportions; it is chiefly our inability to regard color from that angle which hinders the more general and successful use of color on architecture to-day.

Viollet le Duc expresses emphatic opinions as to which colors may be harmoniously associated, and those which cannot be used together. He states, for instance, that blue and yellow are an impossible combination; also, that the use of blue in conjunction with red precludes the possibility of acceptable results: in these opinions he reflects the sentiments of his day on the subject of color harmony, which opens an interesting field of thought on the prevalence of certain influences which have been controlling factors in color expression in Europe. From the commencement of the Gothic form of expression to the second half of the XIX century, it is very doubtful that any Asiatic color sentiment left a permanent impression upon the spontaneous European impulse in color adjustment: this opinion is tendered with a clear vision of the art of the Moor in Spain. During the latter part of the XVIII century the art of China became an important inspirational factor in the fine and applied arts of Europe. It enjoyed a short lived vogue, with such brilliant offsprings to its credit as the "Chinoiseries" of Boucher, Watteau, and other accomplished artists; the cabinet-work of Boulle; wonderful weaves of silk and brocade, and the daintiest of porcelains. In all these works it is remarkable to find that interest was centered upon the Oriental detail, but that the Oriental scale of color harmony was not reacted to; and in those comparatively rare instances where

we find it followed, it is in work made with the fraudulent intent of meeting the existing demand for an imported rarity with an imitation of home manufacture. If we analyse the predominant influence which has actuated the most radical changes in color expression during the last forty or fifty years, I think that in the majority of cases the Oriental is the source of inspiration, and that the foremost and most far-reaching has been the Japanese.

The influence of the Japanese decorative colorists started in Paris, somewhere about 1865: it was introduced into artistic circles in that city with a bomb-like éclat; the circumstances were told me many years ago by my father, who was living in Paris at the time, and was well acquainted with all the persons connected with the incident. A French engineer, whose name I no longer recall, had been resident in Japan for a number of years, occupied in the construction of the first Japanese light railroad. He was a man of artistic sympathy, great culture, and considerable means, who, seeing a vast profusion of beautiful works of art of an unfamiliar character, made a very fine collection. On his return to Paris he decorated his house with these rare objects, which he displayed to the artists, dilettanti and critics, at a series of receptions.

As his acquaintance included many of the younger men who were identified with the newer movements, the exhibits had an enormous educational value, and an influence which reflected itself almost immediately in the subsequent Salons and other Exhibitions, by the evidence of a new quality in color harmony directly attributable to the Japanese coloring. The extent to which Whistler was affected by this new inspiration is too well-known to justify comment, save as a corroborative instance. A very exclusive "Japanese" society was formed, named "Les Jinglars," the name being formed of the initial letters of the names of the founders; the purpose of this body was the promotion of interest among artists in Japanese art, but principally in its color quality; a purpose which they most successfully realized.

When we call to mind the gorgeous effects produced by the Japanese artists by combining yellow and blue, or red and blue, in paintings, textiles, or color prints, after reading in Viollet le Duc that the artistic union of those colors is an impossible achievement, we pause to realize that the expression of our most sincere aesthetic convictions may become the evidence upon which the succeeding generation will con-

demn us—if we matter sufficiently to be judged.

LEON V. SOLON.

The Master School of United Arts

Last January, for the first time in the history of American art, a movement was inaugurated to unite all the arts under one roof and to found a temple where every branch might be taught. To this institution was given the name of the Master School of United Arts, and although it started its career unobtrusively, the impetus lent by its inspired purpose has already made it an established influence.

The idea of the Master School was first set forth by Nicholas Roerich, the Russian painter and one of the greatest figures in contemporary international art. To him such a school was not merely a vision but a reality, for in Russia he had organized and directed the greatest of art schools under the patronage of the Czar—a school with an annual enrollment of 2,000 free scholars.

In founding the Master School in New York, Professor Roerich had the assistance of a faculty of artists in every field, men and women who were able to appreciate the ideals of the school. In music, besides Mr. and Mrs. Lichtman, the faculty included Deems Taylor, Edward Kreiner, Felix Salmond, and others; in ballet, Adolph Bolm; in painting, besides Professor Roerich, there was Henri Caro-Delvaile, the Basque artist; Norman-Bel Geddes, one of the best known of Americans, and the late Hamilton Easter Field. For sculpture, Robert Laurent was invited. In architecture, Alfred Bosson and W. E. Virrick; for drama, Ossip Dymow. Numerous other lecturers in every field were enrolled, including Oliver Saylor, Dr. Christian Brinton, Professor Alexis Kahl, Lazare Saminsky, Ridgley Torrence, Count Ilya Tolstoy and others. Already the school has found it necessary to increase its faculty and this season, by courtesy of the Cleveland Institute, of which he is director, Ernest Block, the Swiss composer, is to give a course of lectures on musical form.

The aim of Professor Roerich and his associates is to establish eventually a great endowed institution where all may come and study free in every branch of art. In its first five months of existence the school taught forty-two scholars free of charge. Already, too, scholarships have been given to the school, the Letz Quartet last season having given a concert for the purpose of establishing a scholarship. Other artistic organizations have

already expressed their willingness to contribute and a series of scholarship fund concerts is being planned for the coming year. This season more whole and partial scholarships are to be given.

A Competition in Design

Believing that the art of clock designing has failed to keep pace with the general advance in decorative and commercial art, awards amounting to \$1,200 are being offered by the Cloister Clock Corporation of Buffalo, N. Y., for the best designs of clock cases in three general classes. A distinguished jury has been selected to make the awards in the competition. It consists of Charles Dana Gibson, Richard F. Bach, Metropolitan Museum of Art; Albert M. Kohn, jeweler; C. Matlack Price, editor and art critic, and Russell F. Whitehead, secretary of the Architectural League.

The fact that the clock designs of the Willards and Eli Terry, who completed their work over a century ago, are still recognized as supreme in the field of clock design in America, makes it apparent that clock designers have not developed their art on a plane worthy of the inspiration and impetus so early given. The donors of the prizes in the present competition believe that this has been due to lack of incentive rather than the exhaustion of the field or a lack of ability on the part of designers to produce new and finer conceptions. Their purpose, in the competition, is to supply this incentive.

The awards include three first prizes of \$250 each, three second prizes of \$100 each, three third prizes of \$50 each, and nine honorable mentions. The prize winning designs become the property of the Cloister Clock Corporation, which also reserves the right to purchase at a fair price any designs which do not win prizes. The competition closes October 23.

One set of prizes is offered for an upright mantel clock case of wood, greater in height than breadth, and another for a case of the same general proportions, in metal. The third set is offered for a mantel clock case of wood greater in breadth, at the base, than in height. The cases must have a minimum inside height of seven and a half inches, an inside breadth of four inches, and an inside depth of four inches.

While open to every one, the competition is expected to be of particular interest to artists, architects, designers and draftsmen, and should result in some very handsome examples of design as well as a renewed interest in a somewhat neglected form of decorative art.

three hundred fifty-eight

Contest in Small Hospital Design

To obtain for the typical small community in America a hospital building which is at the same time efficient in arrangement and creditable in architecture, a leading journal in that field, *The Modern Hospital*, has recently issued the formal program of a prize competition, open to all architects.

Prizes amounting to \$1,000 are to be given to successful contestants, and although certain definite requirements are set forth in the program, the avowed intention of the competition is to bring out new thought in hospital construction.

The Illinois Chapter of the American Institute of Architects, to which the general program of the competition was submitted, has approved it as to form and method of procedure. Richard E. Schmidt of the firm of Richard E. Schmidt, Garden & Martin of Chicago, is the architectural adviser. The jury of award is to be composed of two architects, two hospital superintendents and a graduate nurse who has had experience as superintendent of a small general hospital.

Official announcement of the competition was made at the recent annual conference of the American Hospital Association held in Atlantic City, N. J. Three cash awards of \$500, \$300 and \$200 and two honorable mentions are to be given. The prize-winning drawings, according to the rules of the contest, become the property of the publishing company, but the author is not prohibited from making any individual use of his designs.

The competition calls for a set of plans of a general hospital of from 30 to 40 beds. Registration for the contest must take place on or before November 15, 1922, and the final date for submitting designs is January 15, 1923.

The general program of the contest may be had by addressing the Chicago office of *The Modern Hospital*.

Mr. Alfred C. Bossom, architect, of New York, has just sailed for Europe. When in Scotland he will be for a part of the time the guest of the Forty-second Highlanders or Black Watch, at their headquarters in Perth, and will present the regiment with a record of the work of the restoration at Fort Ticonderoga, where the Royal Highlanders covered themselves with glory in 1758. Mr. Bossom was the architect for this work.

While Mr. Bossom is abroad he will invite the Royal Institute of British Architects, on behalf of the Architectural League of New York, to send an exhibition of drawings here

three hundred fifty-nine

for the League's annual exhibition, which takes place early in 1923. Mr. Howard Greenley, president of the League, has just returned from France, where he made a similar arrangement with the French architects.

Mr. Bossom has also been invited to judge the drawings submitted in a competition for a large commercial building in London, for which a gold medal is to be awarded.

With the endorsement of President Harding, a call is going out to American communities to devote one week—October 9 to 14—to demonstrate the advantage of building homes and better homes.

Better Homes in America

The Advisory Council contains the names of Vice-President Calvin Coolidge, Herbert Hoover, Henry C. Wallace, James John Davis, with many other men of note. An article in the Plan Book (for the use of communities and individuals who purpose to take active part in the movement in the form of a Demonstration Week) signed "Calvin Coolidge," says in part: "Under present conditions any ambition of America to become a nation of home owners would be by no means impossible of fulfillment. The land is available, the materials are at hand, the necessary accumulation of credit exists, the courage, the endurance and the sacrifice of the people are not wanting. Let them begin, however slender their means, the building and perfecting of the national character by the building and adorning of a home which shall be worthy of the habitation of an American family, calm in the assurance that the gods send thread for a web begun."

Full details of the plan may be obtained from Mrs. W. B. Meloney, Secretary Advisory Council for Better Homes Campaign, 223 Spring Street, New York.

Short Bibliography of City Housing

The shortness of this list of American writings, and their recent dates of publication, are clear evidence of the scantiness of the literature on city housing of the apartment type, as compared with the extensiveness of the bibliography of the individual housing type of town and village.

The great need in housing literature is thorough studies of the costs of home-owning to the individual of the different types of housing, individual or row or apartment types.

The articles are arranged in the order of the dates of publication.

Garden Apartments in Cities. John Taylor Boyd, Jr., ARCHITECTURAL RECORD, July and August, 1920. Reprinted by the City & Suburban Homes Co. [A full treatment of the architectural principles of design of apartment houses, together with a detailed comparison with individual and row or group types, illustrated with plans and diagrams; evolution of city housing from earlier types, showing the growth of open planning and the economics of percentage of site occupied by building; legal aspects; relation to city planning; finance, management, maintenance.]

Is It Advisable To Remodel the Slums? Andrew J. Thomas, ARCHITECTURAL RECORD, November, 1920. Reprinted by the National Association of Settlements. [This article is a profound study of the economics and the financial sides of city housing, and may be regarded as fundamental in establishing the basis for city housing. The idea put forth in the closing paragraph, which seemed visionary at the time it was written, has been completely realized in every feature in the Metropolitan housing, especially the coöperation of labor and capital and the coöperative ownership of apartments.]

Some Recent Developments In Housing Finance. John Taylor Boyd, Jr., ARCHITECTURAL RECORD, November and December, 1920. [Economics of tenantry and home-ownership; financial, psychological, and social factors; reasons why industrialism has transformed the majority of Americans into tenants; labor turnover in housing; financial bearing of zoning and city planning on home-ownership; financial principles to be employed in making home-ownership compete successfully with tenantry.]

A Short Bibliography and Analysis of Housing. John Taylor Boyd, Jr., ARCHITECTURAL RECORD, February, 1921. [The bibliography, which is intended as a working bibliography for architects, as pointed out, shows the one-sidedness of housing literature, since up to the time of publication, nearly all American housing literature had dealt only with the individual or row types of the small towns and the suburban districts of the cities.]

Coöperative Homes For Europe's Homeless. Agnes Dyer Warbasse, American Review of Reviews, February, 1922. Reprinted by the Coöperative League. [Although the paper is written by one who is evidently a partisan of coöperative housing, it is nevertheless, a very interesting account of a significant after-war movement in Europe.]

The Phelps Stokes Fund Tenement House Competition. Frederick Lee Ackerman, formerly Chief of Design, Housing Division, U. S. Shipping Board war housing. Jour-

nal American Institute of Architects, March, 1922. [A thorough technical analysis of the relation of architectural design and finance in city housing and the bearing of the percentage of lot occupied by the building on cost and income of the property]

Tenement House Planning. Architectural Forum, April, 1922. Written by Frederick Lee Ackerman. [Another similar technical treatise on design and finance.]

Tendencies In Apartment House Design. Frank Chouteau Brown, ARCHITECTURAL RECORD, Series, June, 1921; May, 1922, unfinished. [A comprehensive analysis of apartment house architecture. See particularly part XI, May, 1922 issue, for analysis of the principles of planning.]

House Design. Andrew J. Thomas, Proceedings of the American Society of Civil Engineers, for March, 1922, page 434. [One of a series of papers and addresses read in the Housing Conference, held by the American Society of Civil Engineers, New York City, January, 1922.]

Business Aspects of a Successful Coöperative Apartment Development. C. Stanley Taylor, Associate Editor Architectural Forum, March, 1921. [Detailed treatment of the finances of tenant-ownership in apartments.]

The Chateau Apartments. ARCHITECTURAL RECORD, June, 1922, Editorial. [Although dealing with a more expensive type of apartments, this article treats of the principles of the tenant-ownership plan as the American solution of coöperative ownership, and as the only means of combating tenantry among the mass of the population of the cities. The Metropolitan Life Insurance Company has publicly announced its intention to apply a similar plan to its new model housing for wage earners.]

Housing Project for the Metropolitan Life Insurance Co. American Architect, August 2, 1922. See also Architecture, August, 1922, issue. [This article contains a complete description of the design in all its features, including the typical domestic arrangements of the apartments.]

A Departure In Housing Finance. John Taylor Boyd, Jr., ARCHITECTURAL RECORD, August, 1922. [This article brings up-to-date the principles of city housing, as illustrated by the Metropolitan Life Insurance Company's model housing; historical evolution of housing finance; the principles of appraisal, the least known factor in housing finance; the great economic waste in housing due to defective appraisal.]

JOHN TAYLOR BOYD, JR.

three hundred sixty

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COVER—Elevation of Garden Temple in the grounds at Eastbury, England. Designed by Sir John Vanbrugh, Kt.

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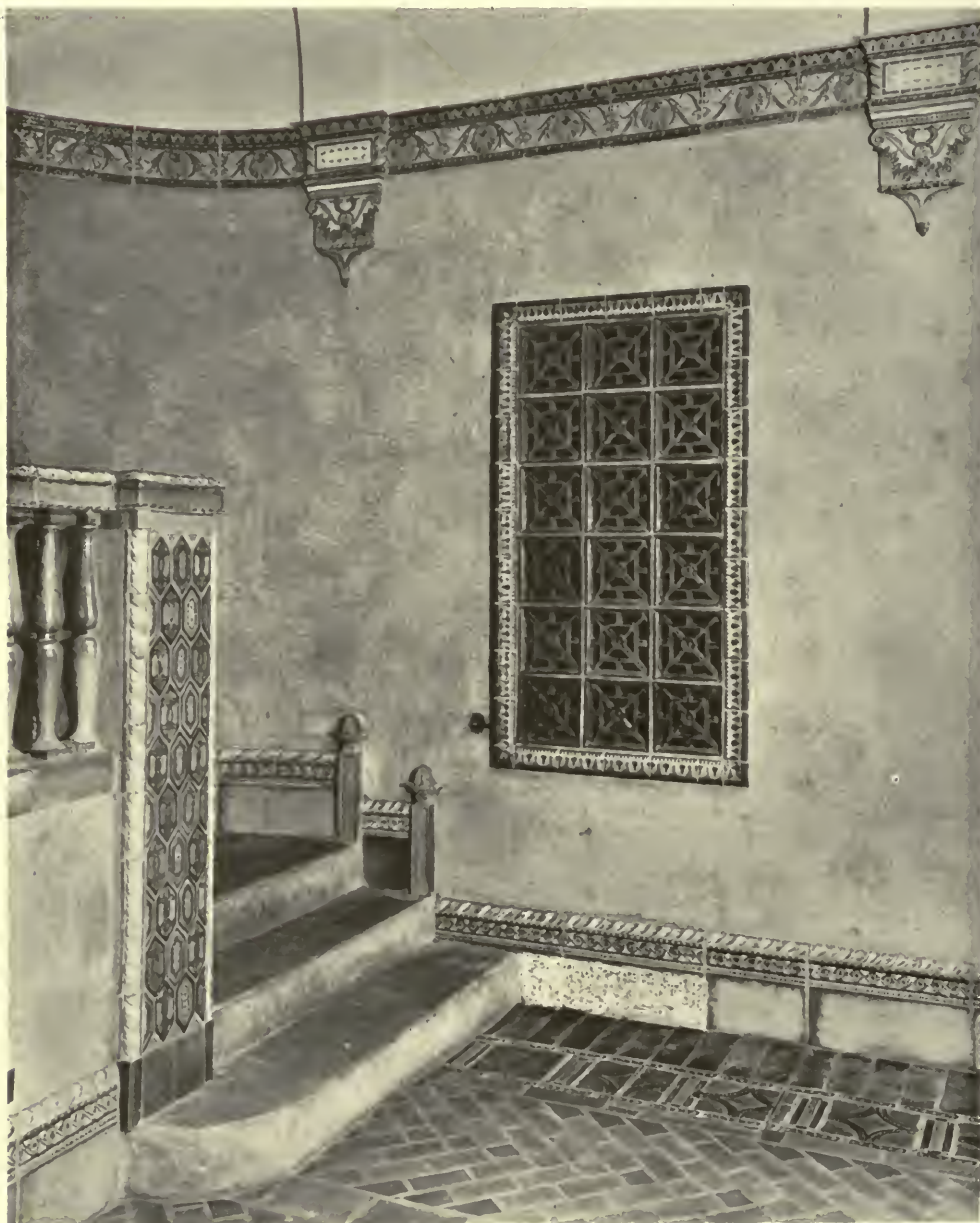
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DETAIL OF STAIRWAY, WITH RADIATOR GRILLES OF FAÏENCE. AETCO BUILDING—THE NEW YORK OFFICES OF THE AMERICAN ENCAUSTIC TILING CO.



AN ITALIAN MAJOLICA FOUNTAIN IN THE MAIN DISPLAY ROOM. AETCO BUILDING—THE NEW YORK OFFICES OF THE AMERICAN ENCAUSTIC TILING CO.

The DISPLAY ROOMS of a TILE MANUFACTORY



By Leon V. Solon

ONE of the most intricate problems of modern salesmanship concerns the manner of presentation of decorative products: the complication increases when the product is one that is just emerging from the fulfilment of purely utilitarian needs, to enter the artistic field—and this is the case with tile today. Though the least informed of the public is acquainted in a general way with the brilliant past of the potter in every land throughout the ages, there appears to be little mental connection between the achievement of former days and current possibilities. In the tile industry a very limited few are striving to express the artistic aspirations of America, hoping that in the course of

time the influence of pure ideals may be as fruitful of result in that industry as they have proved to be in American architecture. In the making of artistic tile, a condition exists which is paralleled in several other decorative art industries; we find that the process of evolution which has prevailed throughout the development of the applied arts in former time is now being reversed. In past ages we find that technical proficiency is in most cases a natural result of accumulated artistic experience; in fact, the necessity for improving the media for artistic expression often compelled the perfecting of technical methods. Today we find great technical achievement awaiting utilization in artistic practice.

The fallacy so loudly proclaimed by William Morris and his proselytes, that primitive methods stimulate artistry in craftsmanship, has died for lack of root and leaf: and though the many masterpieces of the potters' art were in most cases the outcome of rule of thumb methods, or shop tradition in production, there is no more reason that the modern potter should suffer artistic limitation through the scientific control of uncertain factors in material or process, than that the painter today should be considered handicapped because he buys his colors ready-made in tubes, instead of making them himself like Cimabue or Giotto.

The tile industry in this country sold its soul at birth to the devil of commercialism; with adolescence, it begins to show signs of regeneration: in a few instances a healthy desire is noticeable to formulate ideals and standards of craftsmanship on a par with those which actuated the potters of ancient times. Technical achievement is at a higher point of attainment than at any other period in the history of ceramics. In this respect, the greatest contribution to progress of recent years has been made by H. D. Lillibridge, who considers no effort too great if it is productive of some process which serves artistic expression; his technical knowledge and artistic sympathy have successfully revived lost processes and devised new methods of the greatest value to the designer, in such profusion that a generation of artists could hardly exhaust them.

There is an urgent necessity to demonstrate the decorative capacity of tile through the installation of ornamental schemes: the decorative development of tile is in its infancy in this country, and great difficulty is experienced by many architects, and the majority of laymen, in visualizing the ultimate effect from an assortment of samples grouped together; it was with this circumstance in view that the schemes here illustrated were contrived. Comparatively little has been produced to which reference can be made as an aid to gauging indeterminate qualities of effect; the demonstration of certain types of effect through tile installation is, therefore, essential in premises in which

questions of treatment will be discussed.

With the prevalence of commercial standards from the initial stages of industrial development to the present time, a set idea has been impressed upon the public mind as to the most appropriate uses for tile. This is, in a great measure, the aftermath of a manufacturing sales campaign which featured tile solely as a "sanitary" product. It must be conceded that when that propaganda was launched, artistic achievement was a minus quantity. When the interior and exterior treatments of the Aetco Building were being worked out by the company's art department, the necessity was realized for neutralizing certain preconceived ideas which were detrimental to the artistic expansion of the industry: also, that an opportunity presented itself for demonstrating the value of tile or faience as a medium for color effect in architecture and interior decoration. In the façade, an effort was made to show that architectural detail could be given color interest without any of the garishness which the uninitiated imagine is a predominant attribute of glazed clay products. Faience is used which has all the structural advantages of terra-cotta; its restrained harmony of russet, black, Tuscan red, rich low-toned blue, cream and gold, show at a glance that structural clay need not necessarily be crude in color or aggressively commercial in character. The Greek principles for color location governed the general planning of color on the detail; the coloring of the modelling over the door-way presented many debatable points for treatment, all of which were satisfactorily solved by the application of Greek polychrome methods. Particular attention was paid to the modelling, that the plastic quality of clay should reveal itself in treatment. The mellowness of color which characterizes this faience is produced by using the Tuscan glazes created by H. D. Lillibridge, which have an unusual texture, a rich color variation, and the unusual recommendation that they are not injuriously affected by the most rigorous extremes of climate.

The entrance corridor is treated with studied simplicity; a dark Delft blue

SEAT ALCOVE

(See Reverse)

THE manner in which these strongly contrasting "Aetco-Persian" faïence tiles are arranged follows the pattern-plan found on certain mosque towers of northern Africa; in those examples we find harmony established in an assembly of brilliantly colored patterns, by means of a method of pattern grouping. It is a species of alternation, or checker, in which one pattern is constant; the other alternating unit in the checker has the maximum degree of variation. An iridescent lusted tile is introduced to fill the tympanum; this is a contrasting texture to the balance of the decoration, and possesses the advantage that it illuminates the shadow projected from the arch, as lustre reflects light at a great variety of angles.





Seat alcove decorated with Aetco-Persian faïence tiles. Aetco Building
—the New York Offices of the American Encaustic Tiling Co.



Polychrome doorway, demonstrating the application of Italian majolica decorations to architectural detail. Aetco Building—the New York Offices of the American Encaustic Tiling Co.

POLYCHROME FAÏENCE DOORWAY

(See reverse)

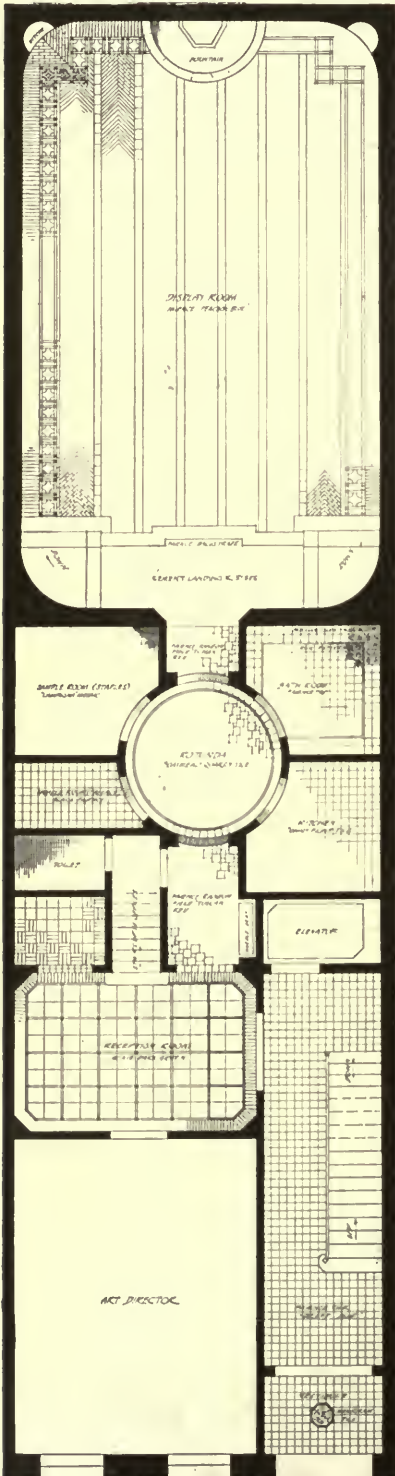
THE traditions of the Della Robbias have hitherto been the accepted model when the architectural detail of the Italian Renaissance has been colored. As this treatment is somewhat limited in effect and hackneyed by overuse, another contemporary influence was sought, and the majolica decorations made the subject of study, with the purpose of adapting the ceramists' decorative methods to architectonic ends: this proved quite feasible, as the detail chiefly used by the Renaissance potter was similar to that found upon the buildings of his day.





The decorative features are treated in polychrome after the manner of the Italian majolica coloring.

STAIRWAY TO MAIN DISPLAY ROOM. AETCO BUILDING—THE NEW YORK OFFICES OF THE AMERICAN ENCAUSTIC TILING CO.



DOOR TREATMENT IN ROTUNDA, AETCO BUILDING—THE NEW YORK OFFICES OF THE AMERICAN ENCAUSTIC TILING CO.



BATHROOM. BASE OF PERSIAN TILE, WALLS OF UNGLAZED BISCUIT TILE. AETCO BUILDING—THE NEW YORK OFFICES OF THE AMERICAN ENCAUSTIC TILING CO.

three hundred sixty-six

covers the floor, extending a short distance up the walls as a low wainscot, terminated with a rope molding. Two highly decorative panels by Arthur Crisp are hung on rough stucco walls. The subdued quality of the façade, and the great simplicity of the entrance vestibule, were conceived for the following reason: when an architect or client comes to this building to decide some tile effect, the mental concentration necessary for the undertaking does not usually operate in the street, or in the vestibule; the state of mind is preparatory to the effort, and should be aided by means of treatments that are unobtrusive but helpful towards severing thought from previous and extraneous impressions, and preparatory to those about to be received. As the visitor enters the reception-room the first reaction is stimulated, and a preconceived impression neutralized which exists in

the mind of many, to the effect that tile is a purely commercial product, capable only of cold color effect. The color quality of this little room is one of great sumptuousness; its walls are covered with 3x3 inch tiles embossed with a simple Greek fret, the field and detail being colored alternately with red, black, and gold; this variously colored tile is set at random, producing a rich and interesting color vibration, quite low in tone value. The floor is of large blue-green tiles, panelled with a narrow strip ornamented with a simple repeating detail, with embossed gilt spots at the intersections. One of the Parthenon metopes, reproduced in faïence, is inserted in the wall over the telephone operator's desk; it is treated with a special type of glaze which develops a brownish tint on those projections which cause the glaze to lie thinly on the surface; this produces an effect



RECEPTION ROOM. AETCO BUILDING—THE NEW YORK
OFFICES OF THE AMERICAN ENCAUSTIC TILING CO.



STREET ENTRANCE IN POLYCHROME FAÏENCE, AETCO BUILDING—THE NEW YORK OFFICES OF THE AMERICAN ENCAUSTIC TILING CO.

of ageing, which is singularly appropriate to the fractured condition of the original. The grilles are of faïence treated with a vermillion glaze. The color effect is carried up the stairway leading to the general office, which is visible from the door-way on entering, by using the wall tile as a base to the steps.

The visitor leaves the reception room through a little vaulted corridor, paved with Tuscan red faïence tiles laid at random; a marble seat fits in a recess, which

is decorated with American-Persian tiles arranged partly at random, after the fashion in which they decorate some of the mosque towers in northern Africa. This corridor leads to a small rotunda, on to which open display and sample-rooms. As white wall-tile is a very important feature in the output of this company, it was necessary to originate some form of decoration that would emphasize the technical excellence of the product, and endow it with a measure of attractiveness which it lacks when seen alone. White wall-tile has the unfortunate peculiarity of being the least adaptable of all the clay products to decorative assimilation. The problem of making this important item of manufacture decoratively interesting seemed almost beyond solution, when the idea germinated that the late eighteenth century French faïence might be fruitful in suggestion. After a thorough examination of historic examples, the solution was found in the dinner-plates of that period. The procedure followed was to create the same proportional relation between the ornamental panel border and the field that was established between the plate border and the center of the plate; it was then necessary to translate those ceramic decorations into an architectural scale.

The very general desire for colored bath-rooms had to be provided for, as the white tile treatment is practically obsolete for residences of any pretension to modernity, distinctive color schemes and treatments being the order of the day. Special color effects in variously combined ceramic materials for the kitchen had also to be devised; partly in the hope that the elusive cooks of this age may become attached to their surroundings, and partly with the realization that the mistress of the house may periodically have to spend many hours there herself, when domestics are unprocurable.

Progressing onwards we enter the main display room, in which the appropriateness of faïence is demonstrated for the polychrome treatment of various architectural features. The stylistic treatment is that of the Italian Renaissance; as the decorative color methods of the Della Robbias have usually prevailed in such



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DETAIL, AETCO BUILDING—THE NEW YORK OFFICES OF THE AMERICAN ENCAUSTIC TILING CO.

(1) Polychrome faïence details of façade.

(2) Polychrome majolica detail.

(3) Original Greek detail, colored and used as door trim in hallway.



DETAIL OF RECEPTION ROOM. AETCO BUILDING—THE NEW YORK OFFICES OF THE AMERICAN ENCAUSTIC TILING CO.

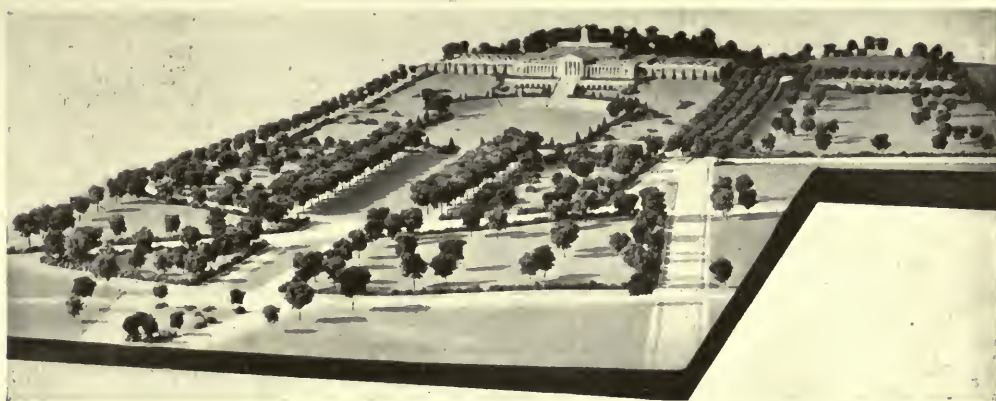
cases, a variation was attempted. As the result of a general investigation into the color methods of the ceramists of the 16th century, it was found that much Italian majolica was decorated with detail essentially architectural in character, treated in a distinctly ceramic fashion. Data were carefully gathered, and a system of treatment developed for the doorway, frieze, fountain, balustrade, etc. It was interesting to find that several of the Greek methods of color arrangement upon detail prevailed at that period. The principle of color and ornamental alternation, which was as much practiced by the Italians as by the Greeks, was featured in the color treatment of the doorway. The general effect of the entrance,

with its deeply splayed jambs, recalls the very early Renaissance buildings of Italy; intensely brilliant blues, vermilion, and gold, illumine the shadows, and suggest the heraldic quality of coloring which characterizes work of that period.

The sales value of this building depended upon the reflection in treatment of the trend of decorative taste; as this could only be gauged through a daily contact with the varying problems, the designing of the exterior and interior faience or tiling was done by the company's art department in New York. The building was an old residence which was made over; the architects for the reconstruction were Messrs. Rich and Mathesius.



NICHE AT ANGLE OF MAIN DISPLAY ROOM. AETCO BUILDING—THE NEW YORK OFFICES OF THE AMERICAN ENCAUSTIC TILING CO.



The grounds of the Handley Consolidated Public School under construction at Winchester, Virginia, comprise seventy acres and include an athletic field and stadium, tennis courts, a golf course, a playground with wading pool for children and a public park. It is aimed in this single school unit to meet the recreational needs of all the people of the entire community; the light of city planning experience, however, will show that for geographical reasons a single recreational unit cannot supplant neighborhood parks and playgrounds.

Walter McCornack—Architect.

Leroy Grumbine—Modeler.

SCHOOL DISTRIBUTION AND AREAS IN THE CITY PLAN



By George Burnap

(Elsie Miriam Parrett collaborating)

THE allocation of public schools has received less attention from city planners than the significance of school areas in the city plan warrants. City planning has been largely confined to the obvious physical make-up of a city—to the *prima facie* features of streets, transportation facilities, monumental buildings, parks and playgrounds. The school plan has not been considered an integral part of the city plan because its properties have not been regarded as permanent in character, nor its activities of a kind to affect the generally recognized phases of city planning. School houses are held to be proprietary property, which may be sold, moved, or transferred to other uses. Their relation to streets, transportation, waterways, civic centers and parks is obscure. Furthermore, school funds are usually raised by separate levies and handled through agencies other than the general municipal

organization, and the whole educational system is generally found in the hands of a distinct professional body which is supposed to supply and foresee not only all academic and administrative needs but those of school housing as well. This is doubtless the very practical reason why schools have not held equal place with other municipal buildings and public areas in the city planner's program.

SCHOOL BUILDINGS AFFECT THE PHYSICAL ASPECT OF A CITY.

Schools warrant the attention of the city planner because they constitute a comparatively permanent physical feature of the city, contributing largely to its architectural character and to emphasis of the city plan. Schools represent the greatest single expenditure of a city. The proportion of municipal funds spent for schools reaches in one city (Bellingham, Washington) the astonishing figure

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of 64%. In cities of 30,000 to 50,000 population, an average of 40%, and in cities over 50,000 an average of 28% of all municipal moneys is spent for schools. These figures hold relatively true for school investment exclusive of operation, the average value of school properties in cities of 30,000 to 50,000 population being approximately 36% of all municipally owned property. In reality the ratio is greater than these figures would indicate, as school plants are financially non-productive, while many other municipal properties, such as public service utilities, are productive or self-supporting. Programs for school buildings are today perhaps more ambitious than for any other municipal development; in almost all large cities the rapid growth of population has made necessary enormous expenditures for school housing without delay. The report of building operations in Omaha, Nebraska, for the years 1919-1920-1921 show permits for school buildings to cost \$3,124,000; Washington, D. C., has expended \$2,200,000 in school building construction during the past fiscal year; Buffalo, New York, has an \$8,000,000 school building program; Niagara Falls a \$3,500,000 program.

Since schools consume so large a proportion of municipal building funds, it logically follows that school buildings must contribute largely to the characteristic aspect of a city; therefore, school buildings are a concern of the city planner in their individual aspect, in their group relations and in their architectural coordination with the city plan.

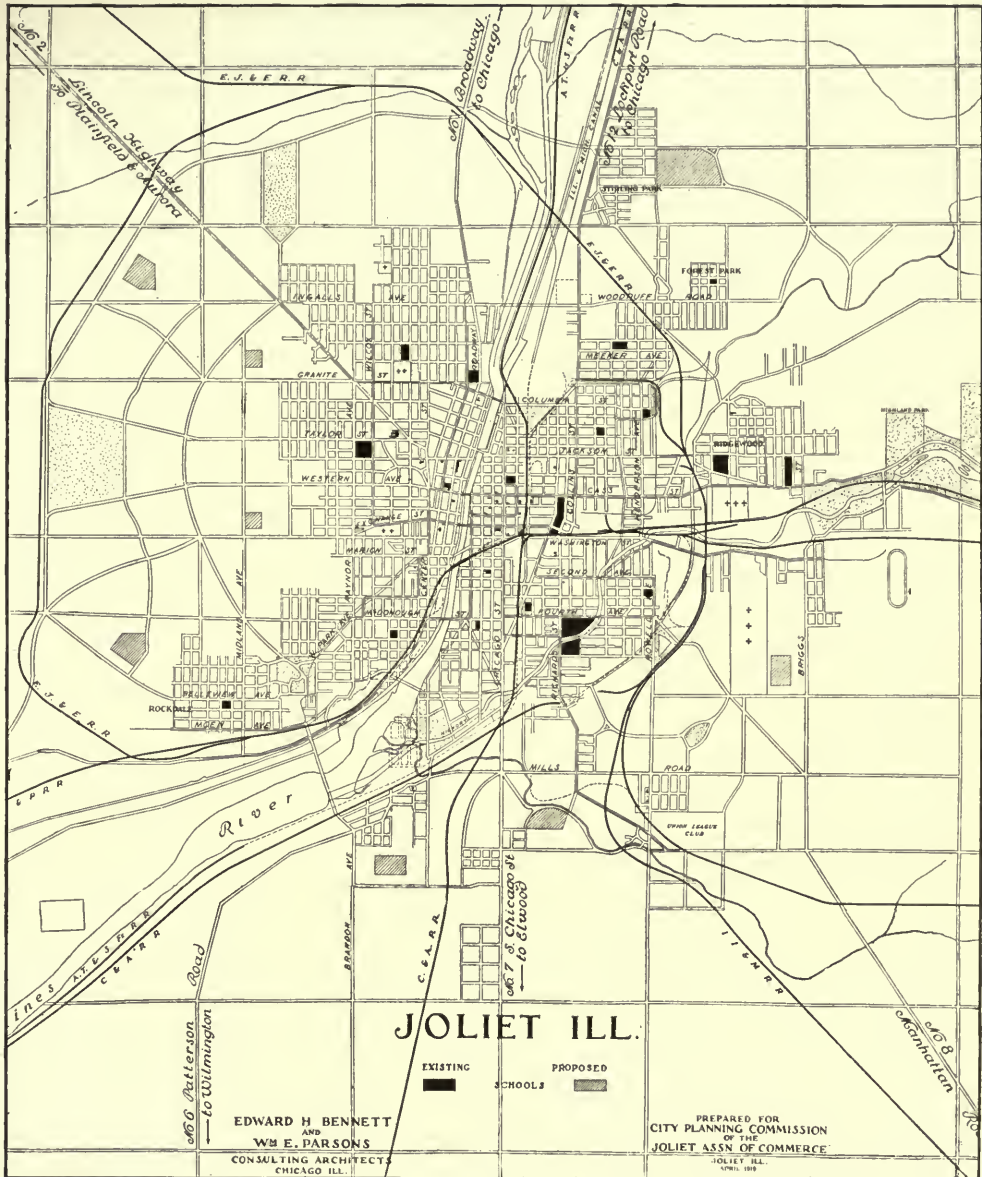
SCHOOL AREAS ARE RECREATIONAL UNITS IN THE CITY PLAN.

School areas need to be predetermined by the general city plan from another standpoint. Educators now regard play as an important phase of education, and consider large open spaces no less essential than classrooms. The wider use of the school plant—"fourteen hours a day, seven days a week, and fifty-two weeks a year" by adults as well as children, links community recreation with the school. The city planner has made parks and playgrounds one of his primary considerations in the arrangement of city

spaces. The community playground originated because home grounds were inadequate; the limited area of playgrounds in turn required organized play; and now it is proposed to unite the community playground with the school, as a measure of economy in obtaining playground supervision by the regular educational staff. School grounds may thereby supersede separate playgrounds and to some extent, perhaps, supplant neighborhood parks. With this wider comprehension of the function of the school and its inclusion of and relation to recreational spaces, the city planner quickly may realize that the determination of school areas is a problem for his particular attention. It is but a step from recognition of school buildings as permanent civic features and of school grounds as civic recreational spaces, to realization that school areas are public reservations which will be found to relate to almost every phase of city planning. Appreciation of this latter fact will insure the active interest of city planners in the location and size of present and future school areas from the standpoint of city-plan efficiency.

INITIAL AIDS TO THE CITY PLANNER IN DETERMINING SCHOOL LOCATION AND AREA.

To what degree the city planner will need to study school housing, as a preliminary to coordinating school areas with the city plan, depends upon the steps already taken by school authorities. In many cities, scientific school surveys have been made by school officials or special committees. The United States Bureau of Education sends out experts to survey such cities as call for this service and fulfill certain requirements. These surveys differ in extent and thoroughness, some concerned very largely with strictly academic and administrative problems; all dealing to some extent with school building, since it is rare indeed to find a city whose school housing facilities are adequate. The general and exact locations of such additional plants as are deemed necessary are rarely worked out in a thorough or scientific manner. In the Bloomington, Indiana, report, a most



Allocation of schools in a city plan depends upon the geographical distribution of school population; exact location of school sites depends largely upon the major street system; the acreage depends upon the future school attendance, which may be forecast by past ratios and predetermined or stabilized by zoning. The City Plan for Joliet, Illinois, prepared by Messrs. Bennett and Parsons, shows generous allotments for future school grounds in outlying districts and spacious grounds to existing schools in the built-up districts.



Irregular topography does not necessarily depreciate a school site which rates high in other respects. A gulch between the Tacoma High School Building and Puget Sound provided the opportunity for a stadium with a seating capacity of thirty-two thousand and a field of three and six-tenths acres.

painstaking survey in some respects, the only recommendation as to future buildings is "conditions indicate that the buildings next constructed should be in the southeast and southwest portions of the city. Available lots in those sections of the city should be obtained as soon as finances will permit in order to insure possibility of a site that will accommodate the largest number of children with minimum requirements of walking." Such a recommendation is too general to be of value in formulating a definite building program. Local school administrators are usually painfully aware of immediate needs, and often have worked out the problem on a more accurate basis.

SCHOOL POPULATION MAY BE APPROXIMATED FROM A SURVEY OF THE TOTAL POPULATION

If no survey has been made and no building program formulated, the usual population survey of the city as a whole will serve as a basis for approximation of school population, its present requirements and estimated growth. The trend of total population will give a fair indication of school population increase or

decrease. Dr. N. R. Englehart of Columbia University, in his comprehensive studies of population in "A School Building Program for Cities," shows that the ratio between school population and total population is apt to be fairly constant. In 103 cities the medium percentage of school population, six to twenty years, is 25.9 of total population. The percentage will vary, of course, in different cities and must be ascertained in dealing with each individual case.

RATIO OF SCHOOL ATTENDANCE TO TOTAL SCHOOL POPULATION VARIES.

The official school census of a city, while supposed to show the number of pupils of legal school age—which differs in the various states, ranging from 7-14 to 5-21—is often faulty, and a reliable school census is the first requisite of an accurate planning program. It should show by age and residence all children of legal school age. Theoretically, school provision should be made for the total school population, but actually the total school population is never in attendance. The compulsory attendance ages are considerably lower than

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legal school age, ranging from 8-12 to 7-16. On a five-year record of the Rockford, Illinois, school, 68 to 71% of the school population were in actual attendance. In Bloomington, Indiana, during the year 1914, 83% of the school population was in attendance. Above the compulsory school age the proportion attending school varies greatly, depending on the character of the community and the traditional attitude toward secondary education in public schools. In some communities a large number of pupils attend private schools. An examination extending over the records of several years will show the average ratio of attendance to total school population, and of school population to total population, and the tendency toward decrease or increase of this ratio. This will give a basis for estimate of future needs.

FACTORS INVOLVED IN GEOGRAPHICAL DISTRIBUTION AND DENSITY OF SCHOOL POPULATION.

The school problem is still further complicated because it involves the factor of geographical areas. The Bureau of Education estimates the density of existing school attendance by block maps. These show at a glance whether schools are properly distributed, whether additional capacity is needed in certain districts, and general locations according to distances to be traveled. It is difficult, however, to forecast future school distribution. The city planner usually makes estimates of growth of total population and population densities of various sections. But school population densities often vary from total population densities, and school population forecasts involve several factors in addition to those upon which total population forecasts are based. The age of families in the neighborhood affects the problem: if the families are young as a rule, as is often the case in a new residential addition or town, it is probable that the maximum school attendance per home has not been reached. Foreign born population has a large percentage of school children. Religious affiliations affect public school attendance in that some sects make very large use of parochial schools. Develop-

ment of industries usually means rapid influx of large families. Encroachment of business sections upon residential areas means light school population density. Apartment house sections have a heavy density of total population and light density of school population.

ALLOCATION OF GRADE SCHOOLS DEPENDS UPON GEOGRAPHICAL AREAS AND SIZE OF BUILDINGS.

The area of each school district, or section, is regulated by the maximum distance a child can walk without difficulty. The Minneapolis report estimates, for example, that maximum distance should not be more than one mile for the first six grades, which, as routes usually follow rectangular blocks, would mean that the radius of the area should not be more than one half mile.

The question then arises whether one building should take care of this maximum area even though so densely populated as to require a very large plant, or whether to further divide the area and cut the distance by erecting two or more small plants. Educators are practically unanimous that one large building is more economical and richer in facilities for the pupil than a number of small schools in the same area. Duplication of facilities is the first point of attack for the efficiency expert in any line. In the study made by the Bureau of Education for Wheeling, West Virginia, the comparative cost of a large and a small school demonstrates that "the larger the building within limits, the richer the facilities that can be given to children; the older and smaller the building, the more expensive it becomes. For example, the per capita cost of the Ritchie School, with an enrollment of 510 pupils, is \$59.10; whereas the per capita cost of the Madison School, with 906 pupils, is \$45.25."

The question occurs whether in a very densely populated area, the plant will be so large that its efficiency will be impaired. This problem has demanded consideration by educators. In the school survey for Wilmington, Delaware, new buildings were recommended to take care of 2,000 pupils each, abandoning old plants; in this city the density of the

various districts appears remarkably uniform and unusually high. In the majority of cities, the districts served by existing schools are found to vary greatly in size; better districting of such cities will indicate where one school may well be enlarged, two schools perhaps be consolidated, and new schools erected, each case with reference to maximum areas which may be served in districts of low school population density, and maximum size of practicable school plants in districts of high density.

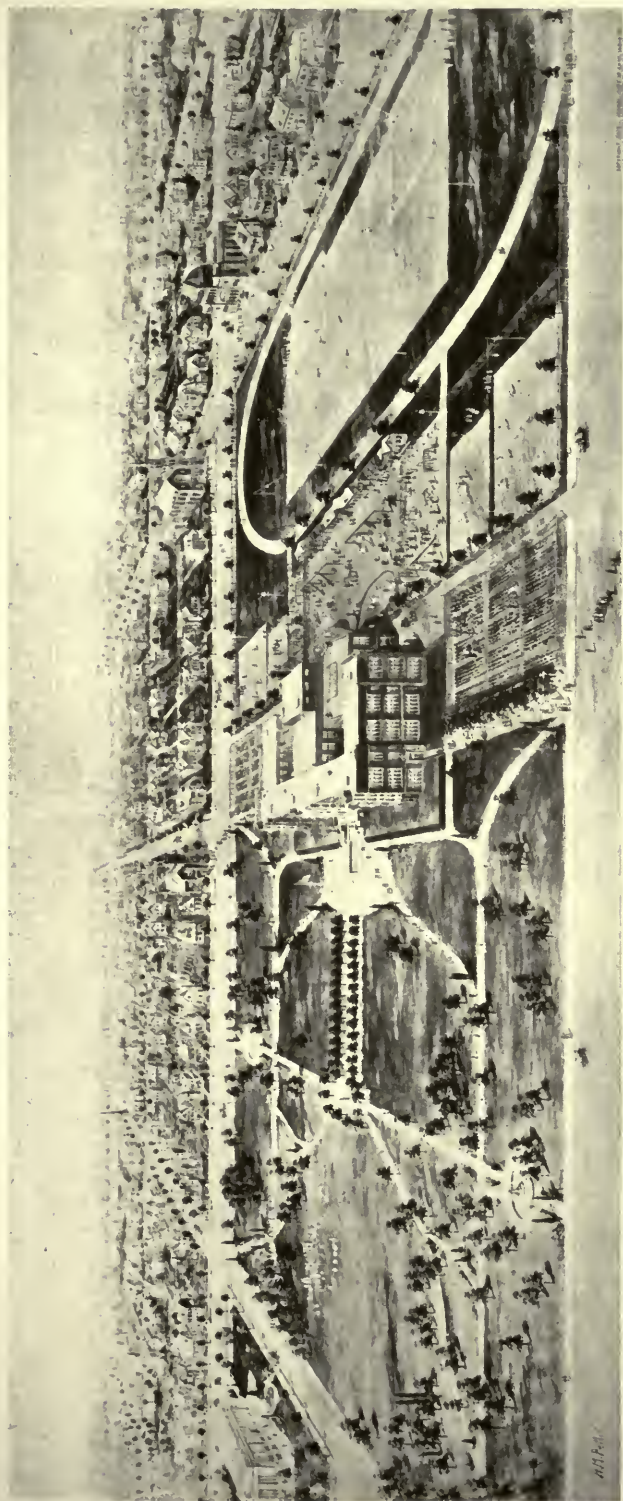
SIZE OF GRADE SCHOOL BUILDINGS AFFECTED BY EDUCATIONAL SYSTEM

Not only school population but also the educational program has a decided influence on school plants. The size of the building depends upon the day school program, taking it for granted that each school is to have a playground attached.

Under the traditional system all pupils were in classrooms at the same time and all on the playground at the same time,—theoretically at least. The platoon, or work-study-play system, made famous by the Gary schools and being rapidly adopted in whole or in part by practically all progressive systems, makes play and work an important and regular part of the school curriculum. The school day is extended; half the pupils are on the playground and in special activities in shop, auditorium or gymnasium, while the remainder are using the classrooms. Hence a school building can accommodate twice the number of pupils under the platoon system as under the traditional system. Mrs. Fernandez, of the Bureau of Education, in her report on the "School Building Program for Athens, Georgia," remarks: "The public school system up to the present time has been



The site of the East Side High School, Cincinnati, Ohio, has sufficient acreage not only for a commodious stadium and athletic field but for a school farm for agricultural instruction.



The Froebel School at Gary, Indiana, (Wm. B. Ittner, Architect), which houses the twelve grades, employs the platoon system of education with consequent equipment of indoor and outdoor gymnasiums, athletic fields, game courts, playgrounds and gardens. The building and ground facilities, therefore, especially fit the plant for its additional use as a community center. The city plan is relieved of providing other open-air recreational areas in this vicinity. From the standpoint of surrounding properties, a better layout of the site would have disposed the park portion of the grounds in an enclosing belt to separate all play areas from the street, thus converting the streets into quasi-parkways and minimizing the objectionable feature of noise.

run on the principle of reserving a school seat for the exclusive use of one child during the entire year. All children have to be in school seats from 9 A. M. to 12 and from 1 to 3, and at 3 all of them are dismissed and turned out to play. The result is that there are never enough seats for all the children to study in nor enough playgrounds for them to play in; and yet large sums of money are invested in these facilities, which the children can have the use of for only a fraction of the day. Thousands of dollars are invested in playgrounds and yet these playgrounds are empty of children all day until 3 o'clock in the afternoon. In fact, if a child is found on the playground before 3 o'clock, he is driven off because he is playing truant. Obviously the playgrounds exist for the use of the children and yet children have the opportunity to use them only a few hours a day because they must be in school seats from 9 to 12 and from 1 to 3 o'clock."

The platoon system originated not with the idea of saving room or money, but of enriching facilities; not of reducing classrooms, but of augmenting special activities. It was a departure in educational methods rather than a device to save space. But shops, gymnasiums and other special rooms are now included in all progressive schools, and it is a question of whether they shall be in use all the time or only part of the time. The traditional system has come to seem wasteful, for the platoon system serves the twofold purpose of enrichment in educational facilities and economy of space in school housing. As a matter of practice, the new system is perhaps more often adopted as an expedient to postpone building, by increasing the capacity of the old plant, than as educational advancement.

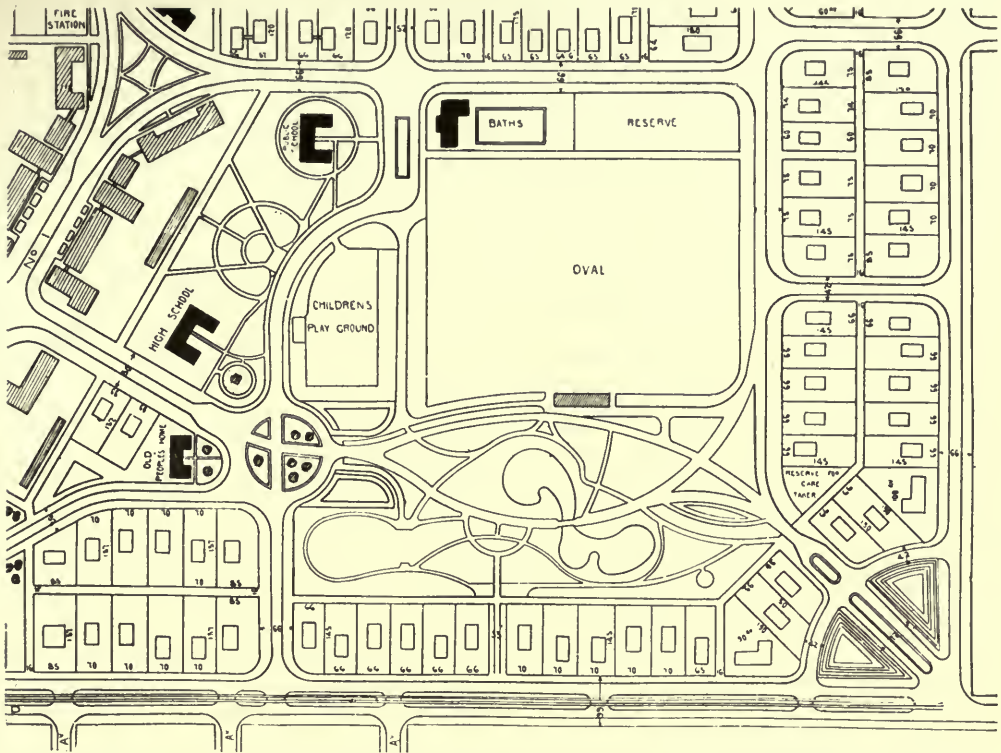
If school authorities are contemplating organizing junior high schools, it is possible to relieve overcrowded grade schools and senior high schools, without addition to such plants, by erecting a new building to accommodate the grades that will be transferred to such school. The junior high school, which is being very generally introduced in the city school system, changes the traditional eight-year elementary and four-year high school or-

ganization (the 8-4 plan) to a six-year elementary, three-year junior high and three-year senior high school organization (the 6-3-3 plan). The contributing geographical district of a junior high school may be greater than that of a primary school, since the pupils are older and able to walk farther, and relieves congestion in the elementary school which serves an immediate neighborhood. The innovation of both the 6-3-3 plan and the platoon system materially affects the size of all grade school buildings and thus enters largely into the calculations of the city planner respecting their allocation.

SIZE OF GRADE SCHOOL GROUNDS.

The proper size of the school ground depends upon the size of the building. It is pretty unanimously agreed that the 100 square feet of land per child is the minimum playground space desirable, and these computations should always consider estimates of future as well as present attendance. It is much easier when necessary, to build additional rooms than to acquire additional playground space. The State Board of Education of Minnesota rules that "no elementary school shall be built upon a plot of ground which affords less than 50 square feet of playground per pupil. One hundred square feet per pupil will be required when conditions make it possible to secure this amount of land." If the platoon system is used, and only a part of the children are on the playground at one time, the minimum per enrolled child can be reduced. Many progressive cities have adopted the policy of placing new buildings on areas not less than one city block in size. In the school building program for Minneapolis (1916) "A Million a Year," it is recommended that "in purchasing new sites the policy of obtaining at least a full block and, whenever feasible, a full double block, should be firmly established and pursued." The rapid development of the playground idea and the importance now attached to it is shown by the further recommendation in this report that sites already purchased, but upon which buildings have not yet been erected, shall be enlarged at once before surrounding land becomes

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Schools best affiliate with social service buildings, libraries and museums to form community or educational centers; they are functionally foreign to a civic center group. In the government plan for Colonial Light Gardens, a new suburb of Adelaide, Australia, the high school and elementary school are made the nucleus of a playground and athletic field, a public bath, neighborhood park and Old Peoples' Home.

more expensive. When additions are made to buildings, the corresponding enlargement of the grounds is considered so essential that "it would be well to establish the rule not to enlarge a building the grounds of which now afford less than 100 square feet per pupil, until additional grounds are acquired." School authorities who have not shown such foresight are now adding to old plants at tremendous cost. Houston, Texas, spent \$50,000 recently to increase school playground areas. Salt Lake City has cut off land from the backs of city lots adjoining school buildings to increase playgrounds.

NUMBER OF JUNIOR AND SENIOR HIGH SCHOOLS DEPENDENT UPON SPECIAL COMPUTATION.

The factors governing the allocation of grade schools, the size of buildings and the area of accompanying grounds do not apply in respect to junior and three hundred seventy-nine

senior high schools. A different computation is necessary in determining upper school attendance, for compulsory school laws do not apply here. The attendance records of a city compared with the total school population of high school age over a term of years, will show the average per cent. which have attended high school and increase or decrease of this percentage. This study may be extended to comparisons with other cities, but care should be taken to select cities of similar size and conditions, and there is great variation in communities. An industrial town will need far less accommodation according to total school population than will a high class residential suburb. The Bloomington, Indiana, survey indicates that there is a direct relation between occupation and education of parents and the age at which pupils leave school. Economic periods of depression or prosperity have an influence. Residential

communities differ according to tradition and custom. Southern communities tend to send children of high school age to private schools, while in the West the private school is a negligible consideration.

LOCATION OF JUNIOR AND SENIOR HIGH SCHOOLS NOT FIXED BY GEOGRAPHICAL CENTERS.

The locating of the high school and junior high school is simplified perhaps in that the question of distance to be travelled need not be one of the principal factors. The old objection to inequality of distance was often based on sectional jealousy or, at best, on erroneous reasoning. In the plan for Athens, Georgia, the U. S. expert in answering the objection to a consolidated high school plant brings out the fact that "no pupil under such a consolidation would have a further distance to walk than many pupils have to walk now." Up to very recent years a central location for the high school was considered of paramount importance,—meaning by central location the general geographical center of the city, if small, or the general geographical center of the district, if in a large city. The object, of course was to equalize as far as possible the distance of travel for pupils. Of late years, the conviction has been growing that other and more important factors should receive first consideration, and that there are actual disadvantages in a central location for the high school if this means proximity to the business center of the city. Such environment for pupils during intermissions is undesirable; noise of traffic and general atmospheric conditions lower school efficiency. Pupils using street cars increase the already heavy morning traffic toward the business section. Dr. Englehart has voiced the general trend of opinion in saying "it is obvious that such elements as environment, adequacy of site, opportunity for proper architectural setting and proximity to street car lines are far more important than centrality."

We find, in certain cases, a central location favored or an outlying location objected to on what at first seems good reasoning. In Minneapolis, a recom-

mendation is made to relieve congestion in other high schools by erecting a high school on land already owned in the business district, with the idea that "this central location near the business district would be found especially advantageous for a high school specializing somewhat in practical courses, particularly commercial courses." One of the United States reports brings up the point that a high school, located in a district difficult or requiring carfare to reach, may result in pupils of high school age leaving school. These arguments cannot be very satisfactorily sustained, the problematical advantage of a business location for a business high school would be outweighed, as in the cases of other high schools, by the disadvantages enumerated; and when distance is a serious consideration, the school can better afford, financially and otherwise, to transport pupils than to house them on unfit and usually more expensive sites.

COMMODIOUS AREAS FOR JUNIOR AND SENIOR HIGH SCHOOL GROUNDS.

Adequacy of site is the great consideration in favor of an outlying location. The estimate of minimum size necessary for the high school site varies from five to twenty acres. The Eastern High School under construction in Washington, D. C., has a site of fifteen acres. The High School at Durham, N. C., just being completed, has seventeen and one-half acres. The cost of securing an area of this size in a central location, even in a residential section, is often prohibitive. Some cities with buildings already built in central locations are acquiring separate game and athletic fields. Others are abandoning old buildings, at a financial advantage, and acquiring new outlying sites of ample size. Flint, Michigan, has acquired a beautiful park area of 57 acres upon which to build a new high school. Santa Rosa, California, will care for city high school pupils and those of adjacent school districts in a new half million dollar plant on a site 65 acres in extent.

In the selection of sites, the same principles apply to both grade and high schools, except as to geographical location and size of grounds. Hygienic con-



In l'École Communale des Garçons, rue Jean Macé, Le Havre, the open space consists of little more than a walled-in courtyard between the class-room and administration buildings—(see following page)—which is intensively used, however, as an out-of-door class-room and for the gymnastic exercises that are part of the school curriculum. Recreation is a once-a-week affair in the municipal forest on the far outskirts of the city.

siderations are especially important in selecting a site which serves so large a number of children. The city planner will, as a matter of course, select ground which can be properly drained, not located as to receive surface drainage of contiguous lots. One school report recommends that soil should slope away from building at least one inch in three feet, and that there should be drainage from four to six feet under the building as well as on the grounds. Mr. F. B. Dresslar, of the Peabody Teachers' Institute, has made intensive studies of certain housing conditions on the health of pupils, and in U. S. Bulletin No. 5, 1910, shows how poisonous gases and exhalations from poorly drained or "made" soil full of impurities are not only detrimental to buildings but to health of pupils. He shows also that correct orientation of the building is very important, so that each classroom shall receive east or west light, as it is impossible to regulate strong south light so as to secure a proper lighting at all hours of the day for all pupils in the room. This is a matter of direct concern

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to the architect of the school building.

It is obvious that a school site should not adjoin a factory or garage, railroad or street railway, on account of noise, dirt and smoke. It has been argued that from the standpoint of accidents, a street car line running past the school house is preferable to one a block away which little children will have to cross, as it is easier to provide police protection in the former than in the latter case. The crossing of street car lines in the case of elementary school pupils, and the provision of convenient but not contiguous transportation in the case of high school pupils, are important factors in choice of school sites.

Ordinarily speaking, a fairly level piece of ground will permit most economical layout of playground areas, although designers often see opportunities in irregular sites. The grounds of the Eastern High School of Cincinnati, one of the finest in this country, covering an area of 28 acres, have variations in contour of 65 feet; as discussed and illustrated in the ARCHITECTURAL RECORD, April, 1922, a deep and wide ravine of great natural

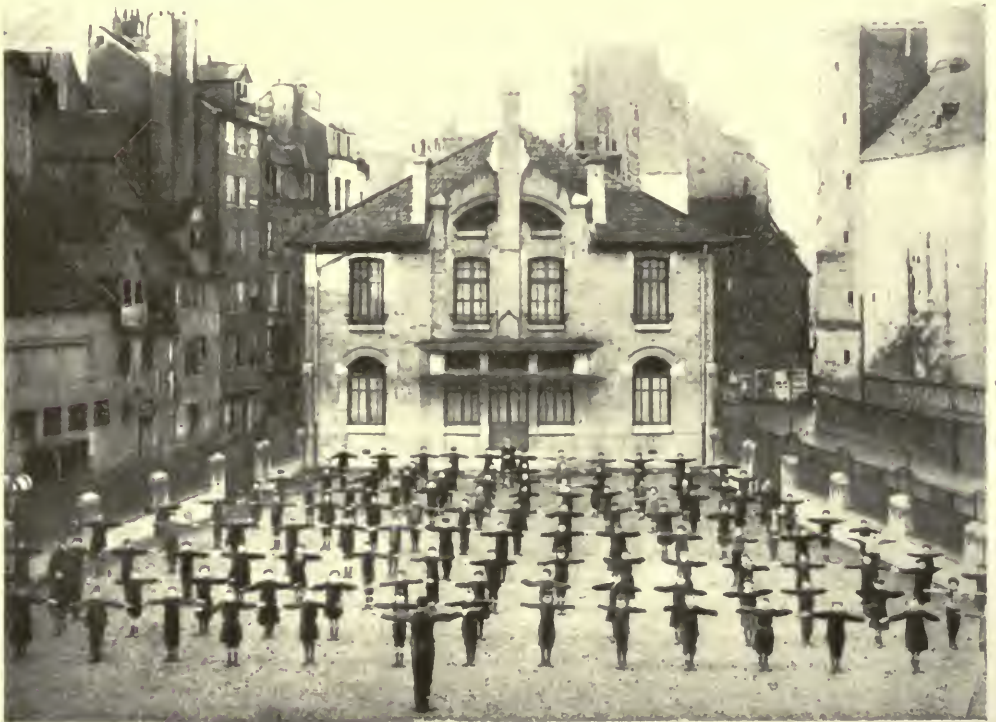
beauty has been preserved and developed by planting, crossed by a foot bridge permitting pedestrians only to enter the main court of the school building. The architect has skilfully utilized the uneven contour in planning the gymnasium, stadium and athletic field on different levels in a way to be both picturesque and convenient. The Washington, D. C., Central High School, while deficient in general recreational space, and Tacoma, Washington, have adjoining stadia made possible by the natural contours. A Greek theatre at Santa Monica, California, one of the features of the high school grounds, takes advantage of the natural topography of the site.

WIDER USE OF SCHOOL PLANTS.

The principle that large school plants are more efficient than a number of small ones is accepted in some localities to the point that there is no division of grades and high school as far as housing is con-

cerned. In Gary, each building carries through the twelve grades. In the unique school planned for Winchester, Virginia, upon which construction is in progress, one great plant on a tract of 70 acres will take care of the entire white school population to an enrolment 50 per cent. in excess of present attendance. It provides for the recreational, social and cultural needs of the city, including an auditorium, stadium and public park. This project although a public school under the administration of the city, is made possible by a private endowment, the Handley Trust Fund, of more than two million dollars. In the words of the Handley Board of Trustees, "this building and these grounds will be the intellectual and civic centre as well as the outdoor playground of the town and region."

The trend of city plan development seems to be the combination of such civic activities as logically belong together, which has resulted in the civic centre, the



Public schools in France, while usually of restricted area, introduce the novel feature of a separate administration building, with director's home attached, as shown in the above illustration of l'Ecole Communale des Garçons, rue Jean Macé, Le Havre. (See also illustration on preceding page.)

community centre, the educational and occasionally the religious centre. Schools best affiliate with social service buildings, libraries and museums. A grade school building seems suitable by location and equipment to become a community centre; the high school perhaps more logically an educational centre. In the Detroit Plan, the Northwestern Playfield provides for a high school building, field house, swimming pool, indoor gymnasiums, men's open air gymnasium, women's open air gymnasium, ball fields and game courts, thus making the high school a component part of an athletic centre. The United States Bulletin, "School Grounds and Play," by Henry S. Curtis, recommends that the school system include a health centre, with dispensary, community house and day nursery. This latter, as found to be the case in Los Angeles, serves the double purpose of caring for children of working women and providing training in child care for high school girls, a phase of domestic art usually neglected in high school home economic course.

SCHOOLS OFTEN JEOPARDIZED BY FORCED ARCHITECTURAL GROUPING.

Some city planners have linked the school plant with the civic centre group. There is no logical connection, however, between the school and the administrative buildings of a civic centre; the location of the civic centre, as implied in its name, makes it undesirable for school purposes; on the other hand, it is not economical to use space in the business district for school sites. Such planning is perhaps the result of conditions already existing and sometimes the desire to make a balanced architectural group. In the recent report issued by the East Orange City Plan Commission the old high school is adjacent to the projected civic centre and a new junior high school is proposed as a part of the new building group. When school buildings are seen merely as architectural units, their real function is in jeopardy. A more legitimate combination occurs in the Colonial Light Gardens, a new suburb of Adelaide, Australia, planned by the Government, where the high school and elemen-

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tary school are grouped with an Old People's Home, the layout comprising a children's playground, oval, and neighborhood park; truly, here is found provision for the entire "seven ages" in an unusual and harmonious grouping. As a general rule, the desire for focal centres in a radial city plan endangers the objective of schools; if schools are to be a part of civic building groups, it is essential that the school itself be the nucleus or congregating point and never be made subject to the purposes of academic design in the city plan mosaic.

LAYOUT OF INDIVIDUAL GROUNDS NOT IN PROVINCE OF CITY PLANNER.

The layout of individual grounds is primarily a problem for the recreational experts, now on the staff of most educational organizations to work out with landscape architects and architects. It interests the city planner only as it obviates the necessity of planning for recreational spaces and special activities elsewhere. School grounds laid out in part as neighborhood parks make other park space in the vicinity unnecessary. The relation of parks and playgrounds with schools is becoming more and more recognized; in the Decatur City Plan Report, twenty-seven "school parks" have been designated on the plan, averaging approximately four acres in extent. In the report for Springfield, Mass., "Parks, Playgrounds and Schools" are grouped for discussion. In the Joliet, Illinois, Plan Report, one section covers "Parks, School Grounds and Recreation."

SCHOOLS CORRELATE WITH MANY PHASES OF CITY PLANNING.

There is indubitable relationship between schools and the city plan in other than recreational aspect. Schools affect land value, increasing those in the general neighborhood, decreasing those in the immediate vicinity. Close proximity to a school is not considered desirable for residences. But if the city planner sets apart sufficiently large areas so that the school building will be placed well in the centre of the area with the playgrounds and courts distributed on all sides, perhaps with a parklike belt between the play areas and the street, the objectionable

feature of noise is largely eliminated and the parking increases the desirability of adjacent building lots by converting the street into a quasi-parkway. There is a direct relation between schools and transportation. Primary schools serve definitely defined geographical districts; but a transportation line to be deflected or newly constructed may materially affect the general population and school population density and thus the size of such school district. A high school plant may serve an unrestricted district but is dependent upon direct lines of communication. A projected bridge may make available a site not otherwise considered.

A GROWING LIAISON BETWEEN SCHOOL AND CITY PLANNERS.

The Muscatine School Survey recommends in regard to future planning that the direction of probable future growth be ascertained as accurately as possible on the basis of available residential and industrial districts. This necessarily coordinates with whatever plans the city may have for industrial development and city planning. We quote at length from the recent report of Springfield, Mass., which shows that school authorities are turning to the city planner for aid and that the city planner recognizes the many factors involved in the problem; although the report does not show a comprehensive survey of the entire school properties has yet been made:

"In November, 1921, the Planning Board was asked to give its opinion on the location of the proposed primary school and playground on the triangular tract of land bounded by Allen Street and Sumner and Wheeler Avenues. It is a rapidly growing residential district. The site is bounded on two sides by well traveled thoroughfares which are destined to become much busier in the near future. Most of the children going to and from a school or playground on this site would have to cross high speed automobile thoroughfares. This would be especially dangerous in the case of primary school scholars. There will probably be trolley lines on one or both of these streets in the future. The site is within 1,500 feet of the Diamond Match

plant with its explosion and conflagration hazard. The site is often under water and swampy; at best the cost of draining it would be high. Despite the fact that the assessed valuation of the several plots included are not immoderately high at the present time, in zoning it would undoubtedly have to be made a local business centre as it is at the junction of two or three principal thoroughfares. It would obviously be wasteful to locate a school in what should be a business centre. A study of the trend and distribution of population in this part of the town would show that the centre of the district would probably be further to the north than the proposed site. Such a location would also probably be advantageous from the standpoint of property values, and the obviating of the necessity of the crossing of main thoroughfares."

SCHOOL AND CITY PLANNING RECIPROCITY.

Zoning laws which tend to regulate shifting of population will make school housing needs more stable and calculable. It is possible in the future that city planners will recognize the relationship still further, and that existing schools and proposed locations in turn may influence other phases of the city plans. Zoning regulations may well be passed to protect school property, for the efficiency of a school should not be vitiated by the building of a nearby garage or noisy factory. Dr. Englehart recommends that "In the purchase of school lands, rigid standards as to environment be considered and city ordinances passed insuring permanently a satisfactory environment for any building built subsequently on this land."

The city plan looks ahead twenty-five, fifty, one hundred years. Ideally this should be true of school planning. In reality school building is farther behind the times than any other phase of housing. The needs are increasing so rapidly that school boards think themselves fortunate if funds can be secured even to approximate present needs. One board which six years ago outlined an ambitious program, states: "Thus far our school population has increased so rapidly that we have scarcely been able to meet pres-

three hundred eighty-four

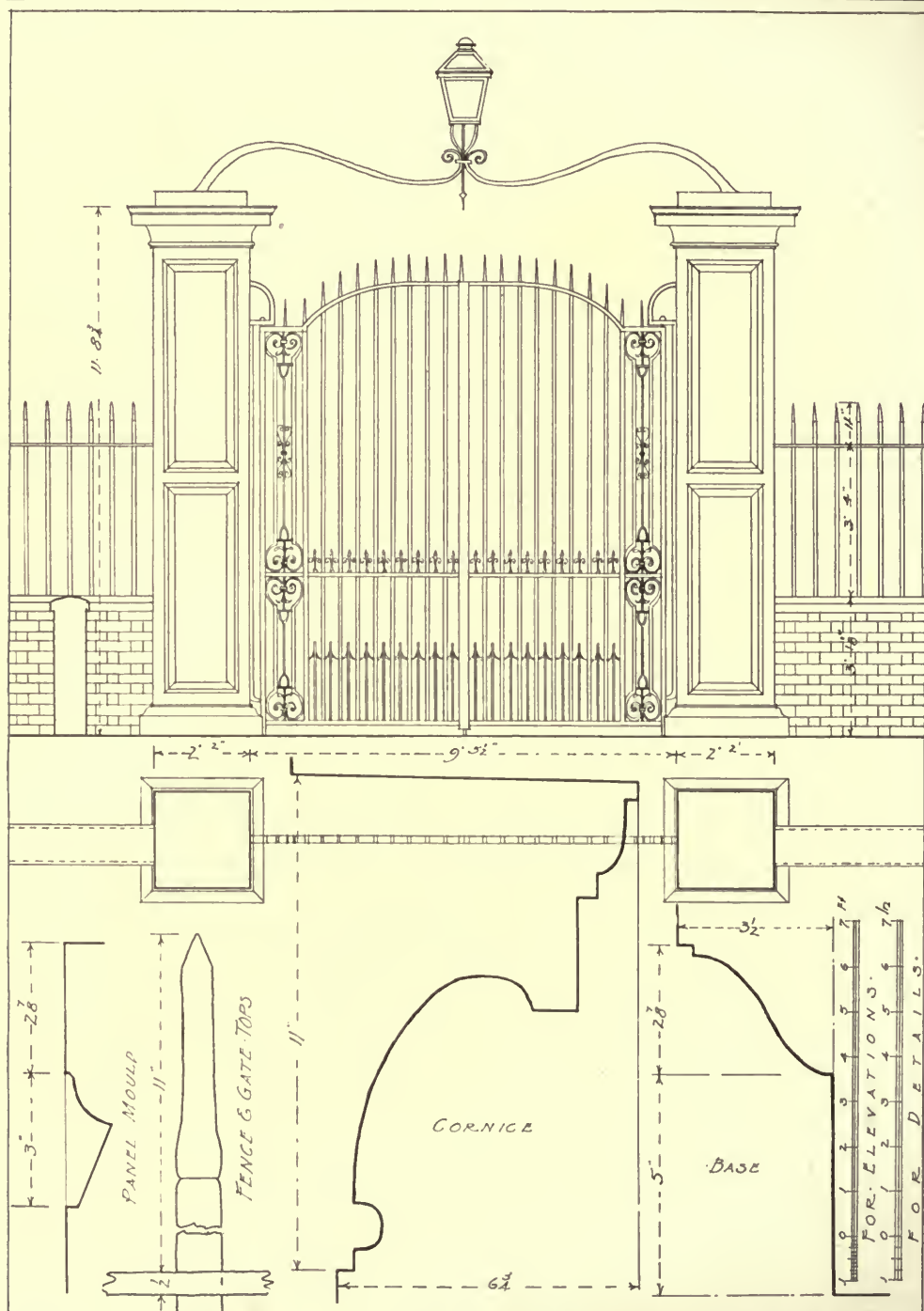
ent conditions and building for the future has been almost negligible." A comprehensive, anticipatory program, however, will locate logically such buildings as may be erected under pressure of immediate need. The public authorities generally are not aware of the importance and ultimate economy of anticipating the future in school planning, in such sense as purchasing school sites in new additions in anticipation of future populations, especially if it means present outlay without immediate return. If linked with the general city plan more closely, the school building program may take on added significance in the eyes of the public, and school construction which has in the past been opportune, hasty, and often subject to "influence," may be logical, economical and purposeful.

The city planner's study of street car

lines, thoroughfares, bridges, valuations, housing and, most important of all, zoning regulations, will enable him to be of inestimable aid to educational authorities in determining best school locations, not only for present needs but future development. The city planner in turn will derive reciprocal benefit from close co-operation with the school authorities, for he may no longer consider schools apart from his professional task, nor may he presume, as in the Memphis City Plan Report, "that school buildings will have been located in accordance with the distribution of school children and hence quite properly fit into the general city planning program." Schools have a duty toward the city plan, the city plan has an obligation to the schools; it is imperative that there be no shirking of responsibility on either part.



ST. GERMAIN-L'AUXERROIS, PARIS.
ETCHING BY DEWITT H. FESSENDEN.



M-ATRON'S COLLEGE · GATE · SALISBURY · ENGLAND ·
Measured · & · Drawn · by · ROBERT M. BLACKALL

EARLY ENGLISH DETAIL and DESIGN



By
Robert M Blackall

THE group of southwestern Midland Counties of England that march with the historic Severn and its great estuary are peculiarly rich in suggestive material for the lover of the early craftsmen's work. The Shires of Wilts, Somerset, Gloucester and Warwick, with the magnificent twelfth century Glastonbury Abbey at the southern extremity and the Shakespearean country of Stratford, the Avon and the Forest of Arden on the northern, provided the examples shown by measured drawings in this article.

No more beautiful setting for any cathedral exists than at Salisbury, in Wiltshire. There is an immense close with a wonderful lawn that took centuries to produce. In the center rises the Queen of English cathedrals, and around it are clustered many beautiful residences, reminding one of Salem or Newburyport in our own country. Like the New England house, each has its entrance gateway, three of which appear in the accompanying drawings.

The Theological College Gate is the so-called Pineapple Gate, used so much later in Colonial architecture, although with a smaller pineapple. The stone is a light grey with plain English red brick. The iron work is all square in section, the main members being $1\frac{1}{8}$ " and the smaller $\frac{1}{2}$ ".

The Archbishop's House Gate is a little more monumental in scale, though it still has the domestic feeling. The stone here is also grey and the brick the plain red English kind. The main iron members are $\frac{7}{8}$ " square, while the smaller ones are $\frac{3}{4}$ " x $\frac{1}{8}$ ".

The third gate—that of the Matron's College—is the least domestic in feeling and nearer to a college gate in scale. It is of light grey stone and plain red brick, and the sizes of the wrought iron are: 1" square $4\frac{1}{2}$ " o. c. for the side railing;

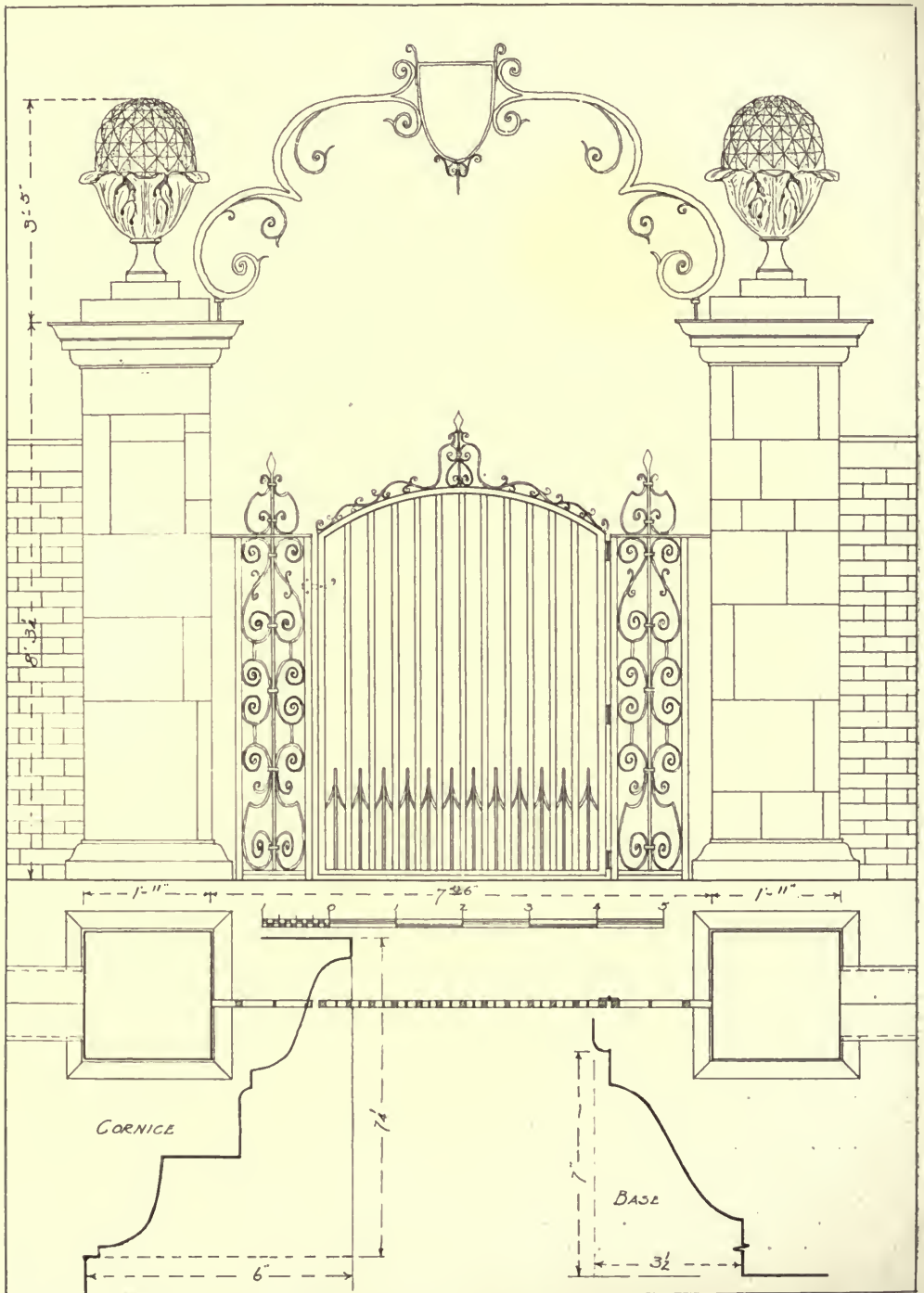
$1\frac{1}{4}$ " for the main members of the gate; $\frac{7}{8}$ " square and $\frac{7}{8}$ " x $\frac{1}{2}$ " for the intermediate ones.

Glastonbury in Somersetshire lies on the old London-to-Exeter mail-coach highway. The George Inn at Glastonbury was built in the time of Henry VII, and is a fine example of an old Pilgrim's hostelry, with several of the rooms still in their original condition.

The Pilgrims' room, on the ground floor, is the room where the guests of the inn who came to Glastonbury to visit the famous abbey were wont to sit and talk and enjoy the landlord's hospitality. As the drawings show, the room leads off from the corridor from the main entrance, and part of the half timber work of the corridor is carried around one side of the room, the other three sides being paneled to the height of six feet with rough plaster above the paneling. Two windows from a former court (now closed in) gave the only light, and on the fourth side a fireplace took up practically the entire length. The fireplace is really a large alcove with seats at each end and in the center a smaller fireplace.

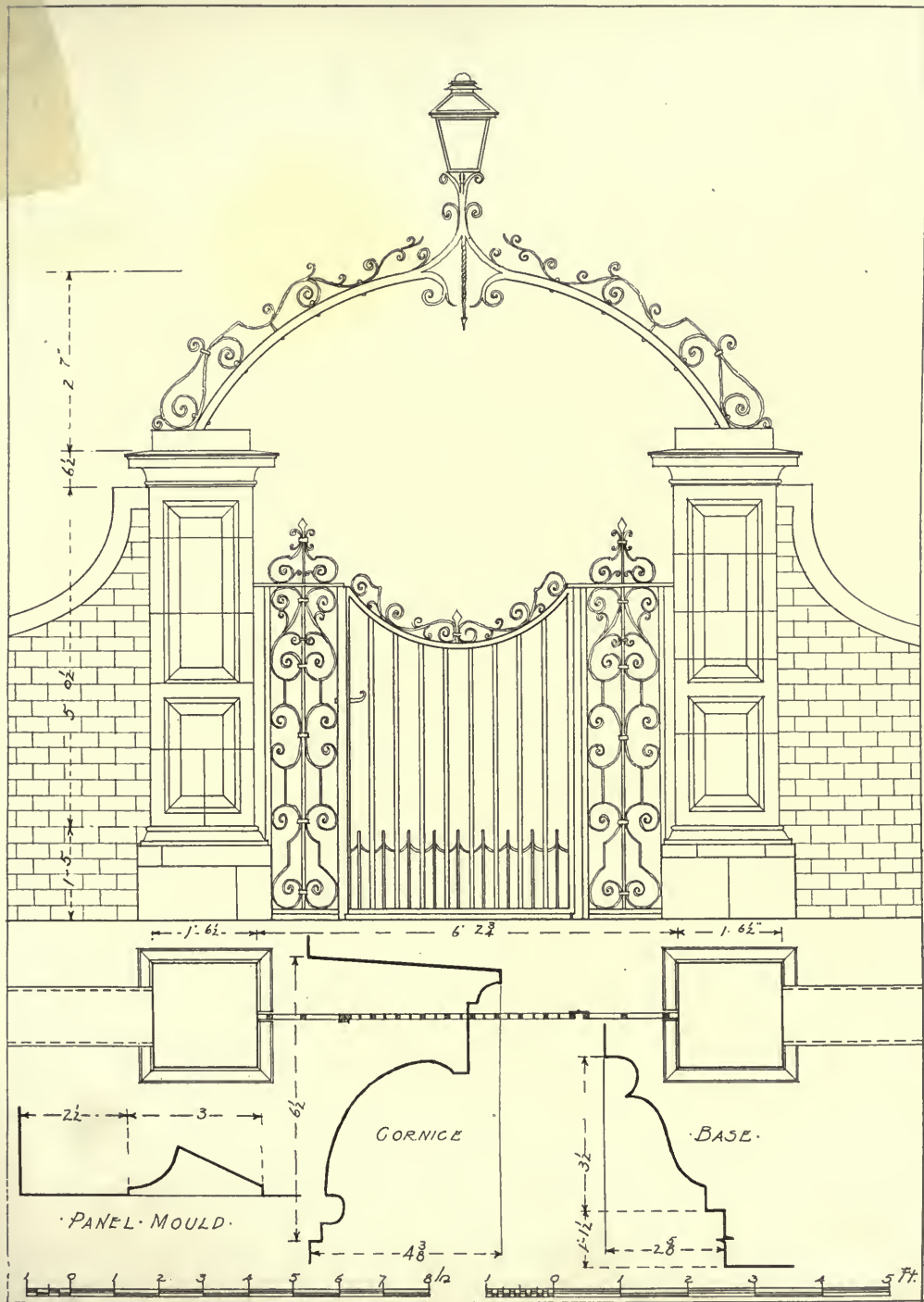
The town of Bath, not far from Glastonbury in Somersetshire, is situated on the winding Somerset Avon, in a cup or bowl, surrounded by wooded downs, up whose steep sides its buildings climb in tier upon tier of crescent, terrace and square. These, built in a dignified Palladian style, give Bath an architectural character quite its own, as a unique and harmonious creation of the eighteenth century. Mr. W. D. Howells says, with much truth, that "the houses of Bath are the handsomest in the world."

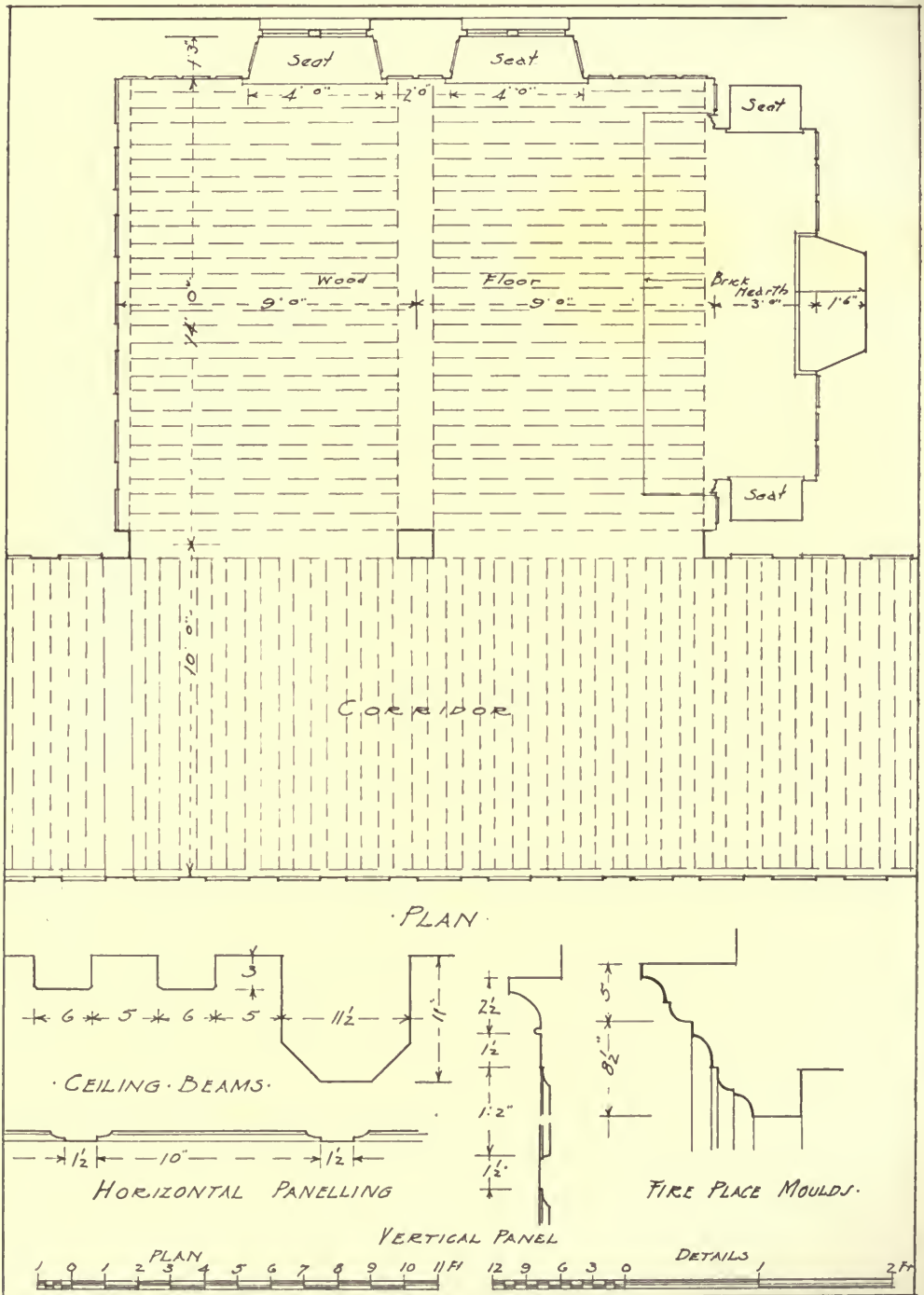
The York House is an old established hotel in the old part of Bath that is full of eighteenth century Renaissance architecture and rich in tradition. The accompanying detail is from the York House, and in character is more like our Colonial



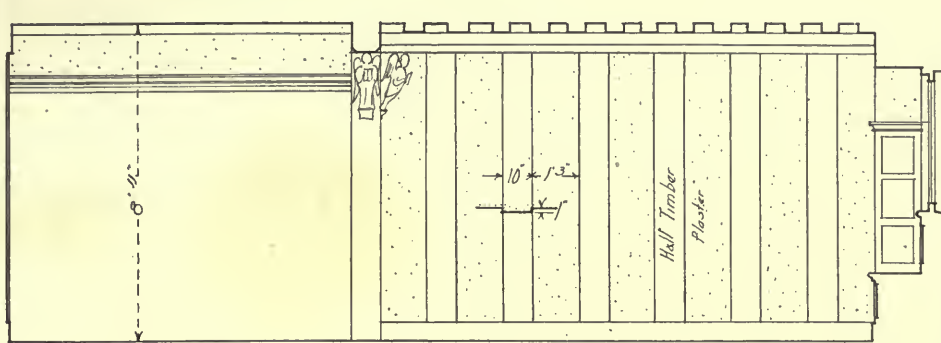
THEOLOGICAL COLLEGE GATE, SALISBURY, ENGLAND
 Measured & Drawn by ROBERT M. BLACKALL

three hundred eighty-eight

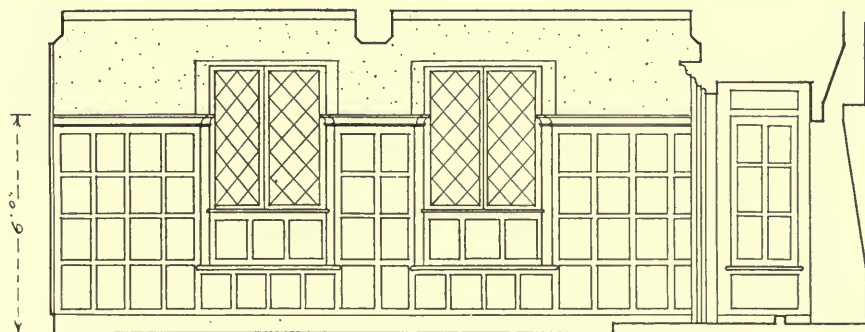




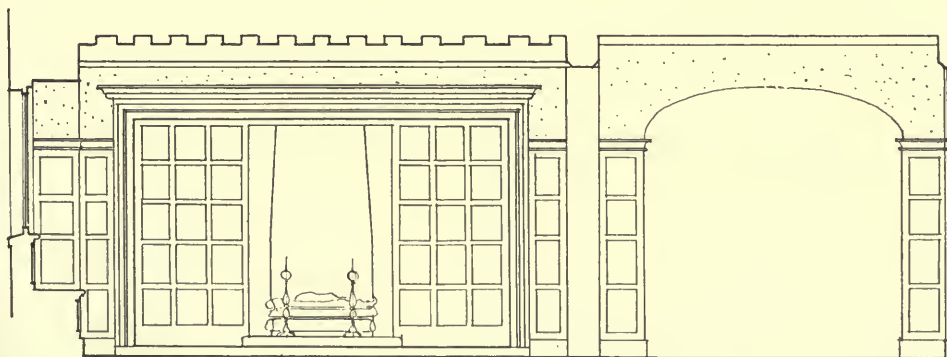
OLD ROOM Measured and Drawn by THE GEORGE GLASTONBURY R. M. Blackall



· INSIDE · WALL · ELEVATION ·



· OUTSIDE · WALL · ELEVATION ·



· FIRE · PLACE · ELEVATION ·

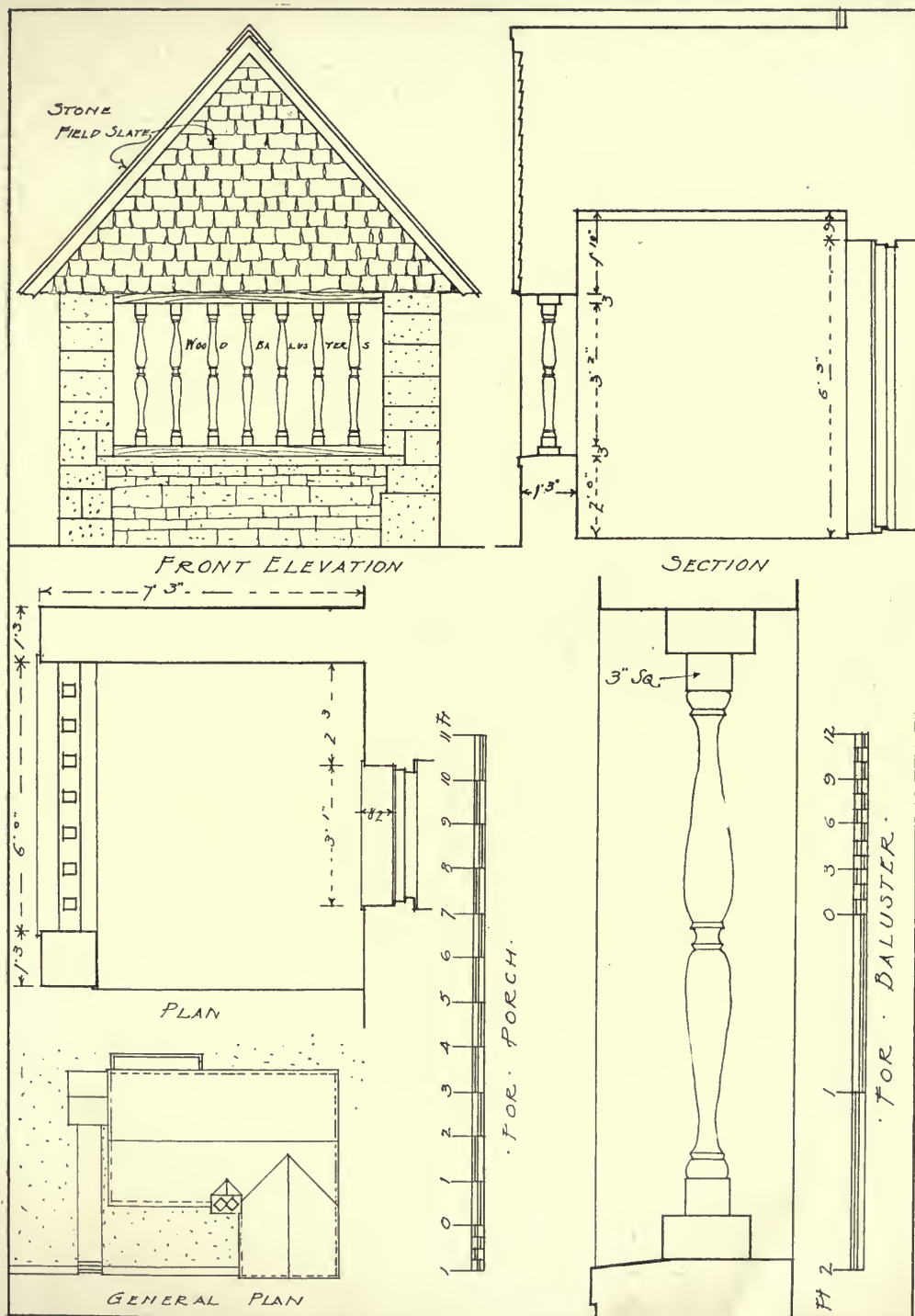


· OLD · ROOM · THE GEORGE GLASTONBURY
Measured & Drawn by R. M. Blackall.



A COTTESWOLD SCHOOLHOUSE
Measured and drawn by

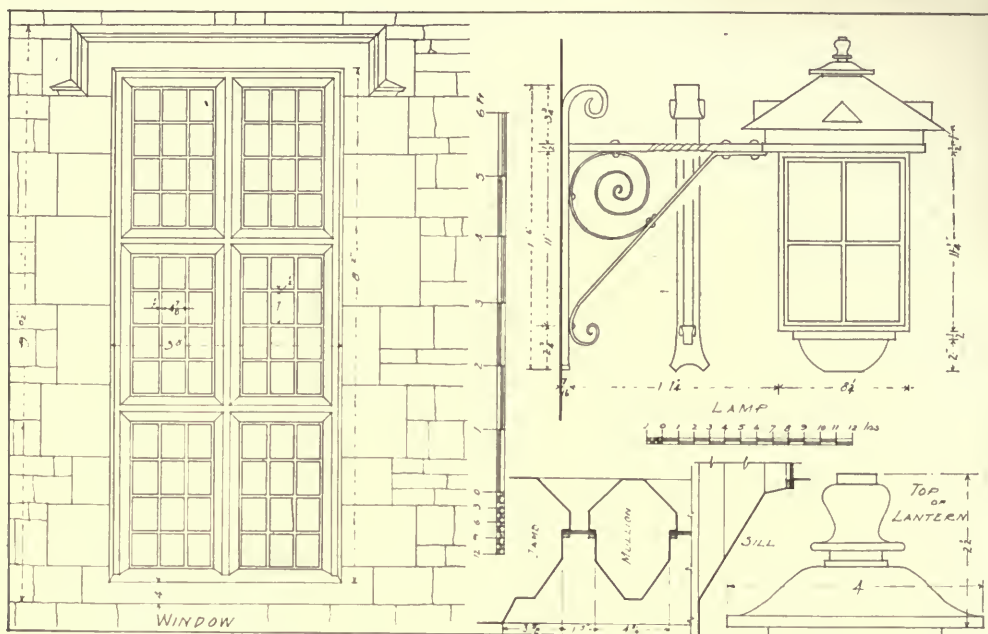
ASHTON-SUB EDGE
ROBERT M. BLACKALL



A COTTESWOLD SCHOOLHOUSE ASHTON SUB EDGE

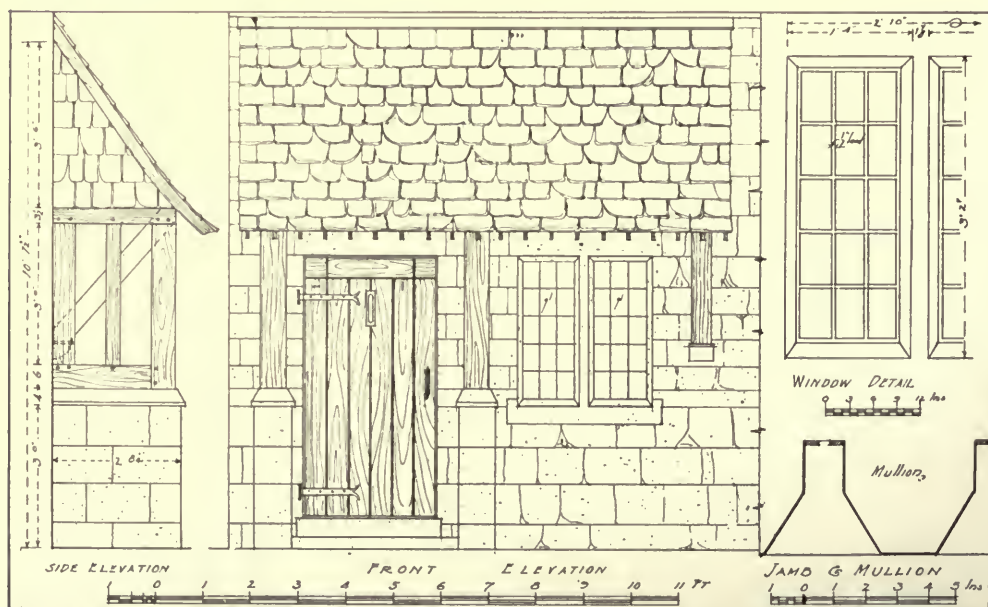
Measured and Drawn by ROBERT M BLACKALL

three hundred ninety-three

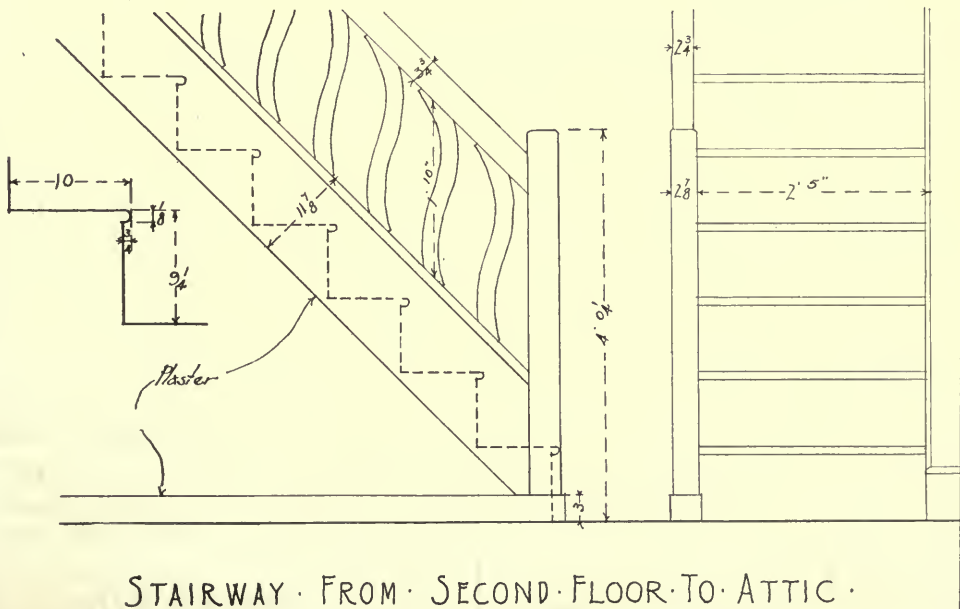
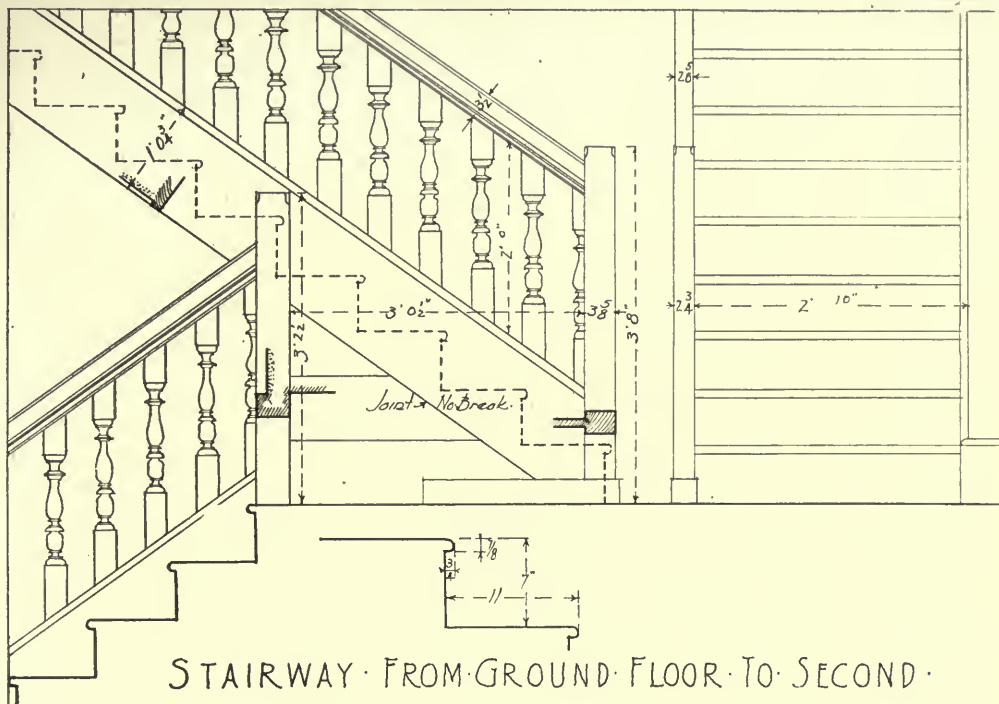


A COTTESWOLD SCHOOL HOUSE
Measured and Drawn by

ASHTON SUB EDGE
ROBERT M. BLACKALL.



HOUSE PORCH BROAD WAY ENGLAND.
Measured and Drawn by ROBERT M. BLACKALL



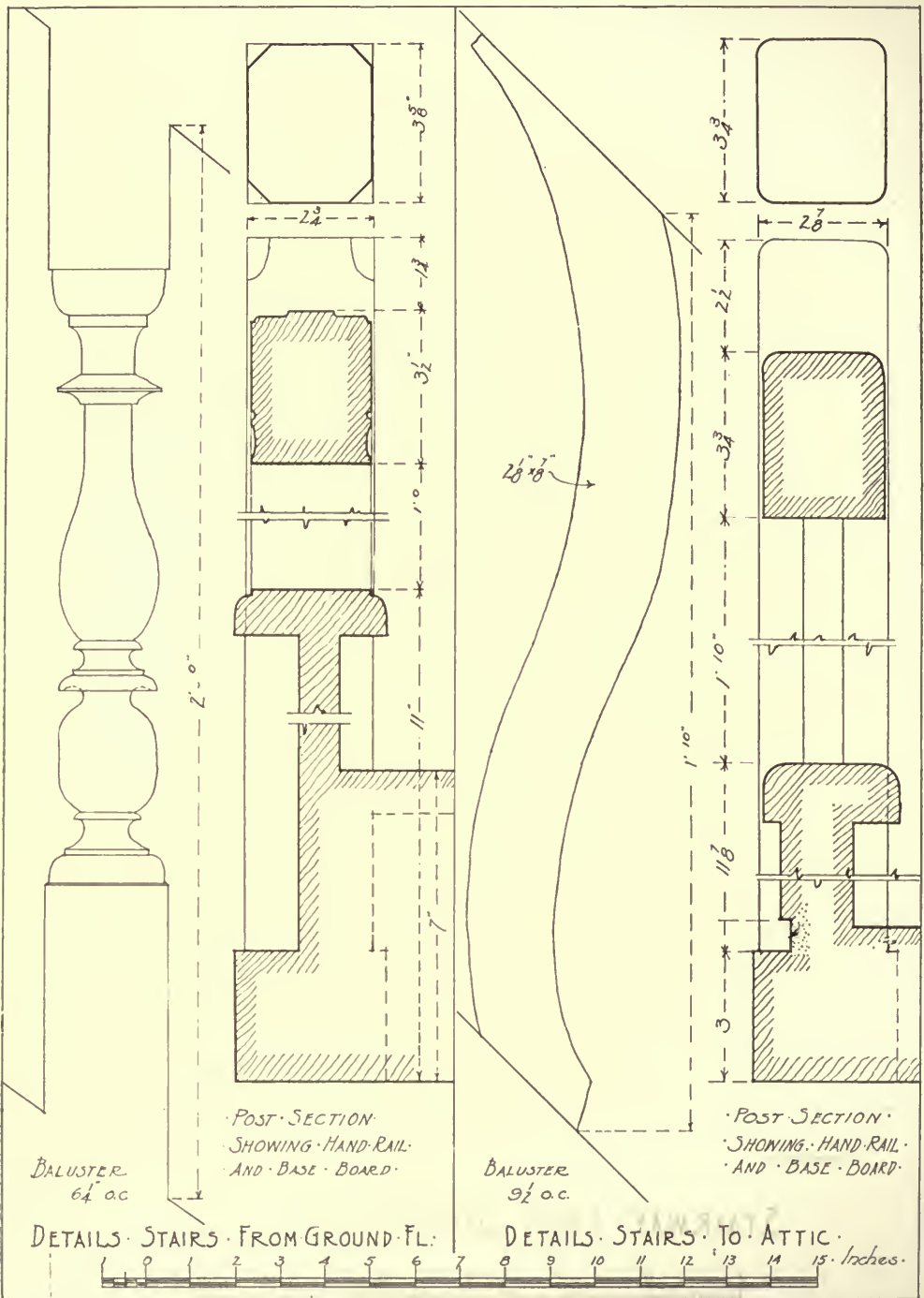
HARVARD HOUSE

STRATFORD ON AVON

Measured & Drawn by

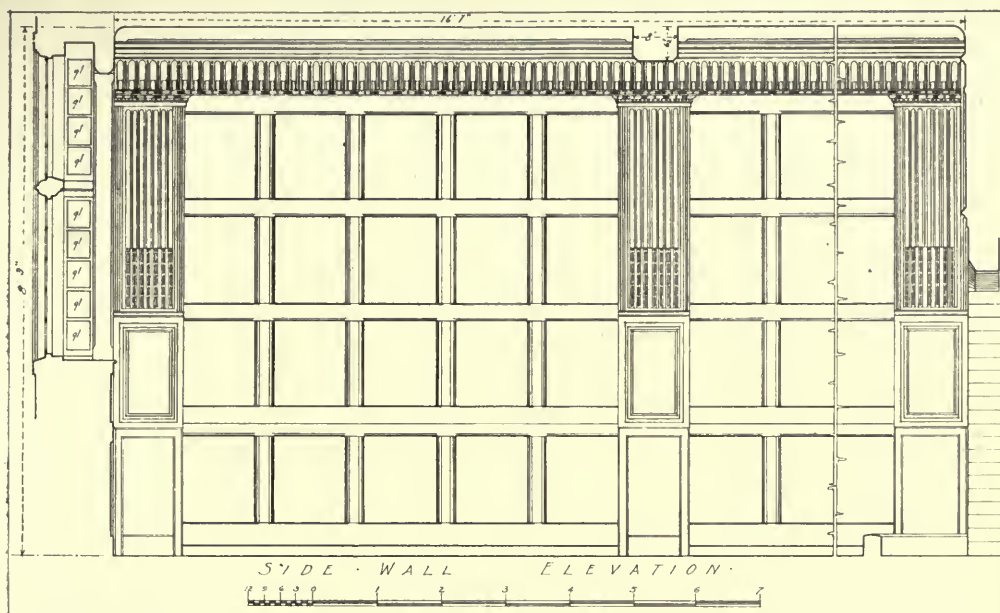
ROBERT M. BLACKALL

three hundred ninety-five

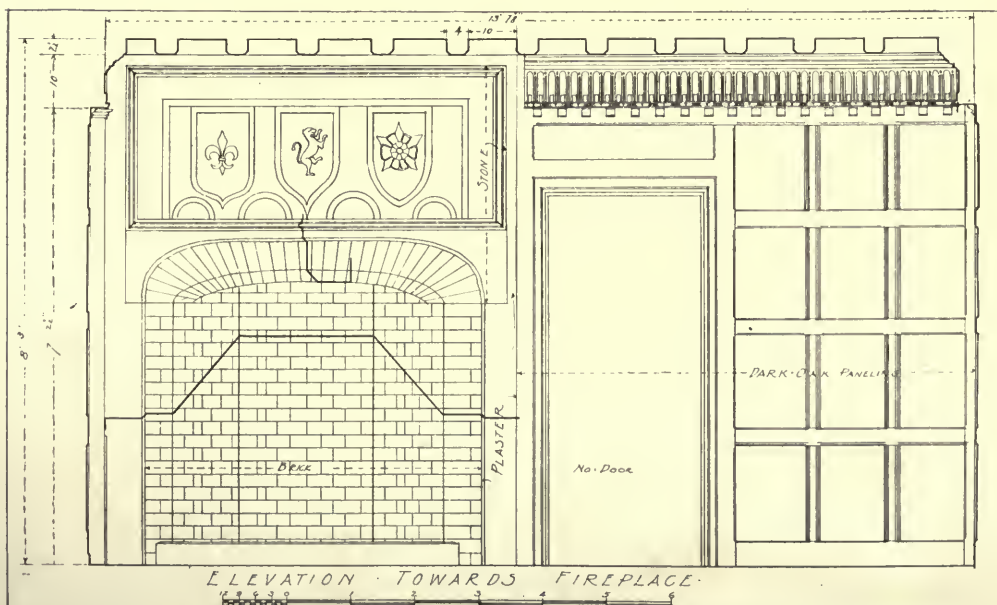


HARVARD HOUSE STRATFORD ON AVON.
Measured & Drawn by ROBERT M. BLACKALL.

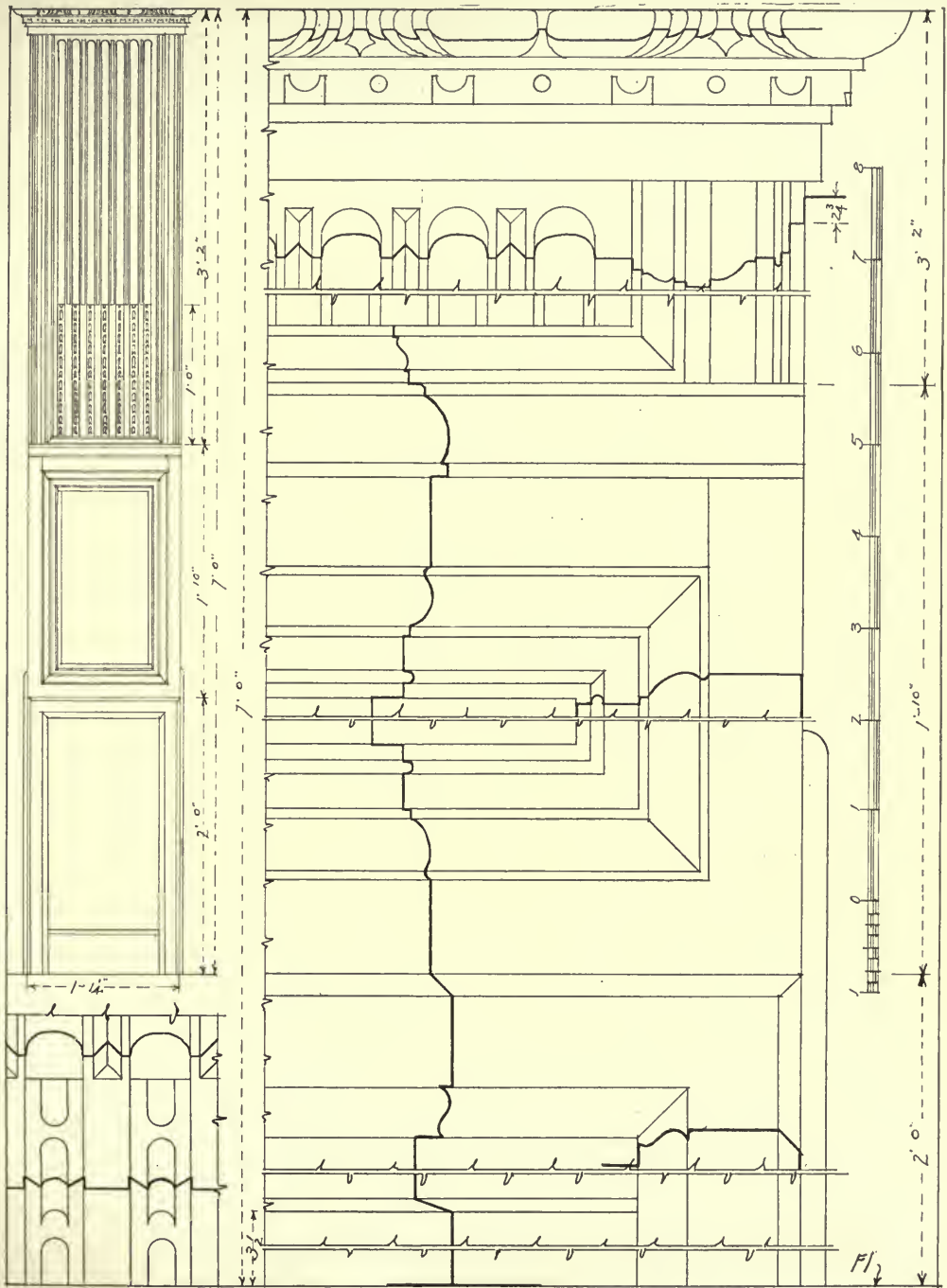
three hundred ninety-six.



SECOND FLOOR ROOM HARVARD HOUSE STRATFORD-ON-AVON ENGLAND
Measured & Drawn by ROBERT M. BLACKALL



SECOND FLOOR ROOM HARVARD HOUSE STRATFORD-ON-AVON ENGLAND
Measured & Drawn by ROBERT M. BLACKALL



PILASTER · 2ND · FLOOR · ROOM · HARVARD HOUSE ·
 · STRATFORD · ON · AVON · ENGLAND ·
 · Measured & Drawn by · ROBERT · M · BLACKALL ·

architecture than eighteenth century England. Such a detail is sometimes found in the alcoves of old Colonial houses, and it is interesting to see it coming up in old houses on the other side of the water.

North of the town of Bath is Gloucestershire with its range of Cotteswold Hills, from the tallest of which one may look over the rich vales to the distant hills of Herefordshire and the verdurous expanse of the Forest of Dean.

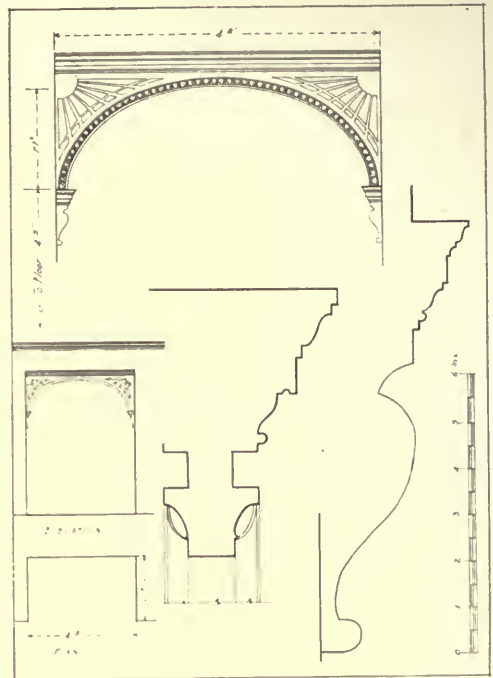
Of the small stone architecture of England there exists nowhere in that country anything that excels the small domestic types of the Cotteswold district. Built of the grey Cotteswold stone that is found everywhere in that section, and covered with the grey stone field slate, they combine charming color effects with harmonious composition.

Of such is the little schoolhouse at Ashton-sub-Edge. While it is modern and the work of one of the best architects today in England, it is exactly in keeping with the surrounding architecture, and has preserved the feeling that the older architecture gives.

The House Porch at Broadway is one of the many interesting details that one finds in the Cotteswold district, and that, in a line drawing, fail to give the richness of effect produced in the materials themselves. Built against the wall of the house for a practical reason, in the same spirit that many of the Colonial details were made in our country, this porch has more charm than many of the more elaborate details being built today. Like the rest of the buildings in this district, it is of the grey Cotteswold stone with grey stone field slate, that blends with it so well, for the roof covering.

North of Gloucestershire and the main range of the Cotteswold Hills lies Warwickshire with the Shakespearean country and the Forest of Arden. A most interesting feature is the Elizabethan brick manor, once fortified, of Compton Wyniat, so remarkably hidden in a hollow of the southern hills as to be visible only from the closest proximity on all sides.

Around the walls of the Great Hall at Compton Wyniat have been placed small wall lamps to supplement the main



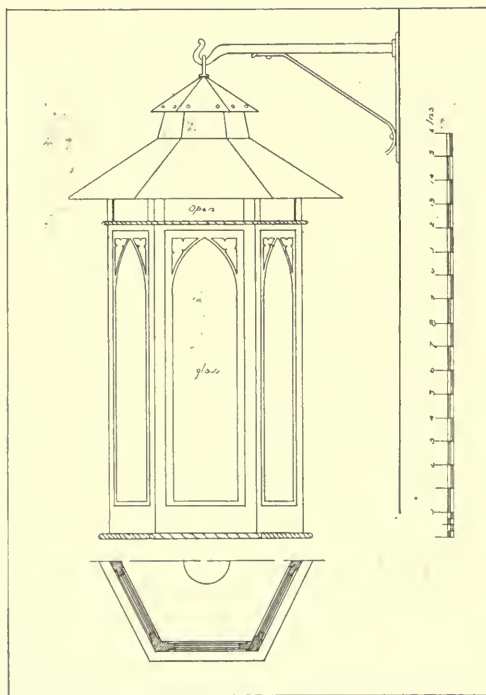
ALCOVE YORK HOUSE BATH,
Measured and Drawn by R.M. BLACKALL.

lighting and to give to the room the soft tone that only many small, subdued lights can do. They are made of rough wrought iron, hammered out, with glass of different colors. They give a very pleasing effect and add to the already charming interior that the Great Hall of this historic manor possesses.

Americans will be much interested in the Harvard House at Stratford-on-Avon in Warwickshire. In 1909 Mr. Edward Morris presented the birthplace of Katharine Rogers, wife of John Harvard, to Harvard University, shortly after the building had been brought back to its original condition under the supervision of Marie Corelli. This home has been called the Harvard House, and in it a great deal of the old work remains. Built in 1596 in the half timber style which is so prevalent in the Shakespearean country, the present condition is as nearly like the original as it is possible to make it. The accompanying stairs are said to be, in part at least, the original stairs that were in the building at the time of its construction. The balusters,

which in spirit are quite late Elizabethan or early Jacobean, clearly show them to be of the same date as that of the building of the Harvard House, which was brought back to its original condition about the year 1909. In the remodeling much of the beautiful old paneling was uncovered and was refinished in as near the old condition as was possible. The accompanying measured drawings of the second floor room of the Harvard House show the original paneling and fireplace,

dating from the early part of the seventeenth century. The woodwork is in excellent state of preservation and the fireplace intact. The paneling is dark stained oak. The plaster is slightly rough and tinted a dull white. The stone is quite soft and of a pink color. The bricks are plain, ordinary red English bricks. The room has excellent proportions, being 13 feet 7 inches wide, 16 feet 7 inches long and 8 feet $\frac{1}{2}$ inch high, and could well be adapted to a modern country house.



WALL LAMP COMPTON WYNIATES ENGLAND
Measured and Drawn by ROBERT M. BLACKALL



DOOR DETAIL—NO 8 SUTTON SQUARE, NEW
YORK. MURPHY & DANA, ARCHITECTS.

~ The TOWN HOUSE of a NEW RÉGIME ~
Numbers 6 & 8 SUTTON ST., NEW YORK CITY



B. HAROLD DONALDSON EBERLEIN

THE city house, taking it by and large, for too long a time was the ugly duckling of domestic architecture. That we have entered well into a new régime in which the ugly duckling is growing into a swan, is a fact from which no little satisfaction is to be derived—a fact, however, that still needs to be emphasized for the benefit of the general public.

Among both architects and clients, for a long period from which we are now fast emerging, there was too acquiescent an acceptance of the limitations and difficulties attending the design and building of town houses, too yielding a disposition to regard the case as not sufficiently promising to reward the same amount of effort that would be ungrudgingly bestowed elsewhere. Yet, despite the dead weight of past apathy, there are many unmistakable evidences that the town house is rapidly coming into its own again.

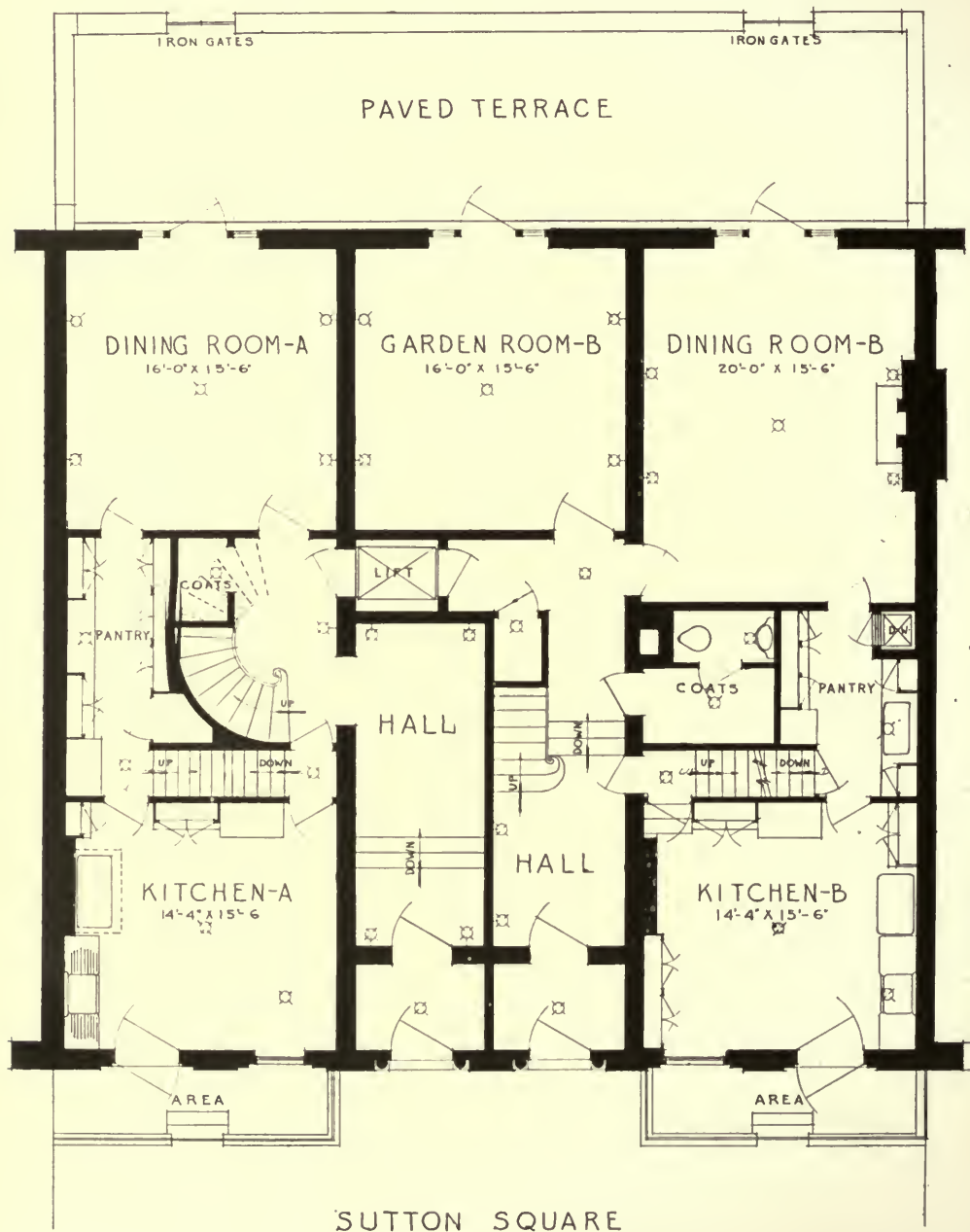
It is easy to understand why the town house once sank to a distinctly subsidiary place, and why the country house and the suburban house absorbed the lion's share of attention in the public eye at the expense of city architecture. The country and the fast developing suburbs of our larger cities afforded a comparatively virgin field to be exploited and, under the strong impetus of new social habits that encouraged residence away from the immediate centres of population and business during at least a portion of the year, it was but natural to take advantage of the freedom from hampering restrictions and concentrate new enterprise and the play of invention where they would produce the most telling effects.

On the other hand, the average city house—especially in our older cities—had apparently reached a more or less crystal-

lized state which, from sheer force of the numbers concerned, seemed incapable of much further development and lacked an appeal to the imagination unless a process of wholesale demolition and reconstruction were to be undertaken—a process for which, at the time, no one was prepared. Furthermore, city lots were more or less uniform in shape and size and, consequently, the plan of city houses more or less pre-determined and the type fixed, whether the houses were erected by individuals for their own occupancy or whether they were undertaken in numbers on a speculative basis. Worst of all, the great majority of such city houses were built at a period when domestic architecture was assuredly not of an inspired sort, or of a character calculated to arouse any enthusiasm in a later generation. The expanses of city area covered by rows of such banal or even positively ugly dwellings, all closely similar in their chief externals, therefore created an unfortunate tradition and bred a widely prevalent feeling that the architecture of the city house of average size did not offer much opportunity for interesting or original treatment. Such a deeply-rooted feeling, unreasonable though it might be, could only discourage architectural effort and make matters worse than they really need have been. If anything interesting was to be done in the way of domestic architecture, the client generally sought some other field and the architect acquiesced in the client's choice.

Leaving out of account the large and manifestly expensive city mansions that first broke this dismal tradition of the mid-Victorian era, there grew up well within the bounds of general recollection a movement destined to effect the architectural regeneration of the average-sized and small town house. Eventually this

COMMUNITY GARDENS OVERLOOKING EAST RIVER



FLOOR PLAN—NOS. 6 AND 8 SUTTON SQUARE,
NEW YORK. MURPHY & DANA, ARCHITECTS.



STREET FRONTS—NOS. 6 AND 8 SUTTON SQUARE,
NEW YORK. MURPHY & DANA, ARCHITECTS.



GARDEN FRONT

ELEVATION OF GARDEN FRONTS—NOS. 6 AND 8 SUTTON
SQUARE, NEW YORK. MURPHY & DANA, ARCHITECTS.



GARDEN FRONTS—NOS. 6 AND 8 SUTTON SQUARE,
NEW YORK. MURPHY & DANA, ARCHITECTS.



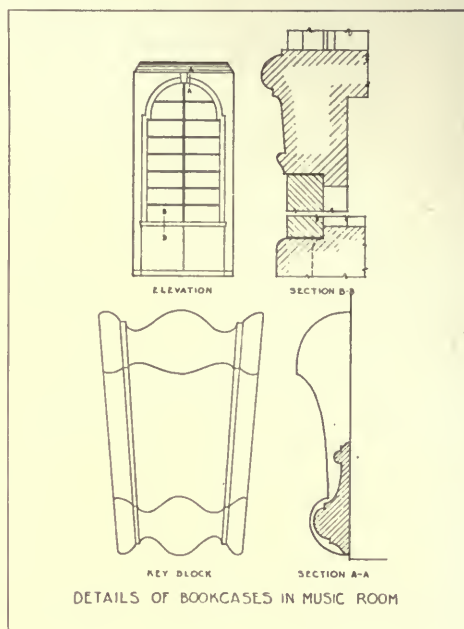
DINING ROOM — NO. 6 SUTTON SQUARE,
NEW YORK. MURPHY & DANA, ARCHITECTS.



DRAWING ROOM—NO. 8 SUTTON SQUARE,
NEW YORK. MURPHY & DANA, ARCHITECTS.

was destined to reclaim districts that had long since been relegated to slums and small streets that had erstwhile been devoted to stables that were not used, or to garages that could just as well have been elsewhere. First came the sporadic remodeling of houses along the lesser thoroughfares. Next came the turn of the little streets—once contemptuously termed “back” streets—and finally the reclamation of whole blocks that had long since settled into a hopeless, dingy, third-rate existence. In past years THE ARCHITECTURAL RECORD has duly chronicled the work of Richard Arnold Fisher in rehabilitating Lynde Street and Brimmer Street, in Boston; of similar undertakings by various architects in some of the smaller and long-neglected streets of Philadelphia; of sundry other works of like character; and, most recently of all, the enterprise or re-making of nearly a whole city block, in the Turtle Bay project executed by E. C. Deane and William Lawrence Bottomley.

Economic considerations, and most chiefly the necessity for using over again more wisely the city spaces previously covered by wasteful, sprawling building, have gradually compelled us to adopt a saner attitude and study the subject of town house building from a fresh angle. Under the urge of inexorable necessity we are perforce constrained to heed the excellent precedents of our own early domestic city architecture and the older city dwellings of England and foreign countries. This renewed study has brought a somewhat belated but none the less wholesome realization of what a far-sighted minority always knew but the majority of the American public had hitherto ignored in a prodigal way—that the average domestic architecture in cities affords just as much scope for sound invention and interesting disposition as does the freer rural and suburban field. There has been too much sprawling and too little popular realization of the desirability of producing excellence in small, compact neighborhoods where every foot of ground had to be made to yield its utmost return. Indeed, the very limitations inseparably attending the problem of city building prove a stimulus and incentive



to the capable architect to exercise his utmost ingenuity and resourcefulness. There is always more credit to be gained—and incidentally more satisfaction—and greater mastery to be acquired from the experience in making something worth while where the subjects to work upon and the materials to work with are apparently least promising.

One of the most recent and edifying examples of the process of regeneration in town house architecture is to be seen in the pair of houses at numbers 6 and 8, Sutton Square, New York City, on the bank of the East River. This particular district has come within a private scheme of reclamation enterprise. The work immediately under consideration involved an extensive process of remodelling and making over three houses into two dwellings. The street frontage was used for access, but the principal frontage, overlooking a common garden and commanding a broad view of the river, was made out of what were formerly the back buildings. As the accompanying plans show, the available space was ingeniously divided so that each house should have an equal allotment of large desirable rooms overlooking the river. This necessitated what might be



DRAWING ROOM—NO 6 SUTTON SQUARE,
NEW YORK. MURPHY & DANA, ARCHITECTS.



COMMUNITY GARDENS OVERLOOKING EAST RIVER



SUTTON SQUARE

SECOND FLOOR PLAN—NOS. 6 AND 8 SUTTON SQUARE,
NEW YORK. MURPHY & DANA, ARCHITECTS.



HALLWAY—NOS. 6 AND 8 SUTTON SQUARE,
NEW YORK. MURPHY & DANA, ARCHITECTS.

termed an interlocking plan. Exactly how it works may be seen by studying the elevation where the division lines between the houses are indicated. There is not one vertical line of division between the two houses, as is usually the case in a pair of dwellings, but the line is broken so that one story of the first house overlaps the lower story of the next, while a compensating overlapping takes place above, each dwelling thus containing an equal amount of floor area. The device is extremely ingenious and deserves close study, as the same arrangement may well be applied in other more or less similar instances. The principle, so far as the writer is aware, has not been used elsewhere in America. In actual practice it has worked out exceedingly well, has produced the desired results, and is obviously susceptible of further advantageous development in similar cases.

In style, these houses are of late eighteenth century type and have been treated with a most engaging urbanity of manner. The exterior illustrations speak for themselves, so far as the architectural mode is concerned, but note must be taken of the coloring and of the interior treatment. The brick is the old brick used in the former exteriors and not too scrupulously cleaned of adhering particles of mortar and plaster, so that an agreeable texture has been preserved. The doors are painted a dark grey blue, corresponding with the bluest tinge in the plum-colored brick of the walls. The knobs are of *solid* brass, a fact worth noting because the texture, color and sheen of the metal are different from the same phenomena when the hardware is plated or lacquered.

In the drawing-room of Number 6, the walls are painted grey green while the mouldings are painted a light yellow. The mantel is of yellow Siena marble. In the

dining-room of Number 6, the walls are of light yellow and there are no mouldings standing out in actual relief. Instead, the mouldings are *painted* in a pale peach color, with one broad line, one inch wide, and two narrow lines, one quarter of an inch wide. Thus contrasting color is made to take the place of actual projection, with excellent effect.

In the drawing-room of Number 8 the walls are covered with red gum vertical boarding, waxed. The detail of the bookshelves is shown in the accompanying drawing. In the hallway illustrated, the narrow panels are of old yellow, the broad bands are of light tobacco brown, the base is of dark green marbleized, and the rest of the decoration is executed in grisaille of a cool tone. This decoration, it should be noted, was painted by Allyn Cox. The fixtures are black and gold, and the furniture is dark green and gold.

The foregoing notes will serve to convey a sufficient notion of the general scheme of decoration followed. This scheme is interesting in itself, but apart from its own intrinsic interest, it is highly significant because it flatly challenges the popular obsession, unwarranted but prevalent, that it is improper to use anything in late Georgian houses that departs very far from a dull mediocrity of cream-colored or grey paint; very admirable colors, in themselves, and *safe*, but tiresome in the extreme when universally employed. As a matter of historical fact, a great number of bright and interesting colors were commonly employed in this period and the architects have done a real service in making use of them in this instance. Both in the matter of decoration and in the ingenious plan followed, the houses in Sutton Square merit close examination on the part of all who are in any way concerned with domestic architecture in cities.





TRINITY CHURCH, SYRACUSE, NEW YORK. CLARENCE
WILSON BRAZER AND E. DONALD ROBB, ARCHITECTS.



TRINITY CHURCH, SYRACUSE, NEW YORK. CLARENCE
WILSON BRAZER AND E. DONALD ROBB, ARCHITECTS.



GENERAL OFFICES—THE HOOPS ADVERTISING COMPANY, CHICAGO, ILLINOIS.
SCHMIDT, GARDEN & MARTIN, ARCHITECTS.



CUMBERLAND STREET HOSPITAL, BROOKLYN.
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CUMBERLAND STREET HOSPITAL, BROOKLYN,
NEW YORK. LUDLOW & PEABODY, ARCHITECTS.



CUMBERLAND STREET HOSPITAL, BROOKLYN,
NEW YORK. LUDLOW & PEABODY, ARCHITECTS.



CUMBERLAND STREET HOSPITAL, BROOKLYN,
NEW YORK. LUDLOW & PEABODY, ARCHITECTS.



BUNTE BROTHERS' CANDY FACTORY, CHICAGO,
ILL. SCHMIDT, GARDEN & MARTIN, ARCHITECTS.



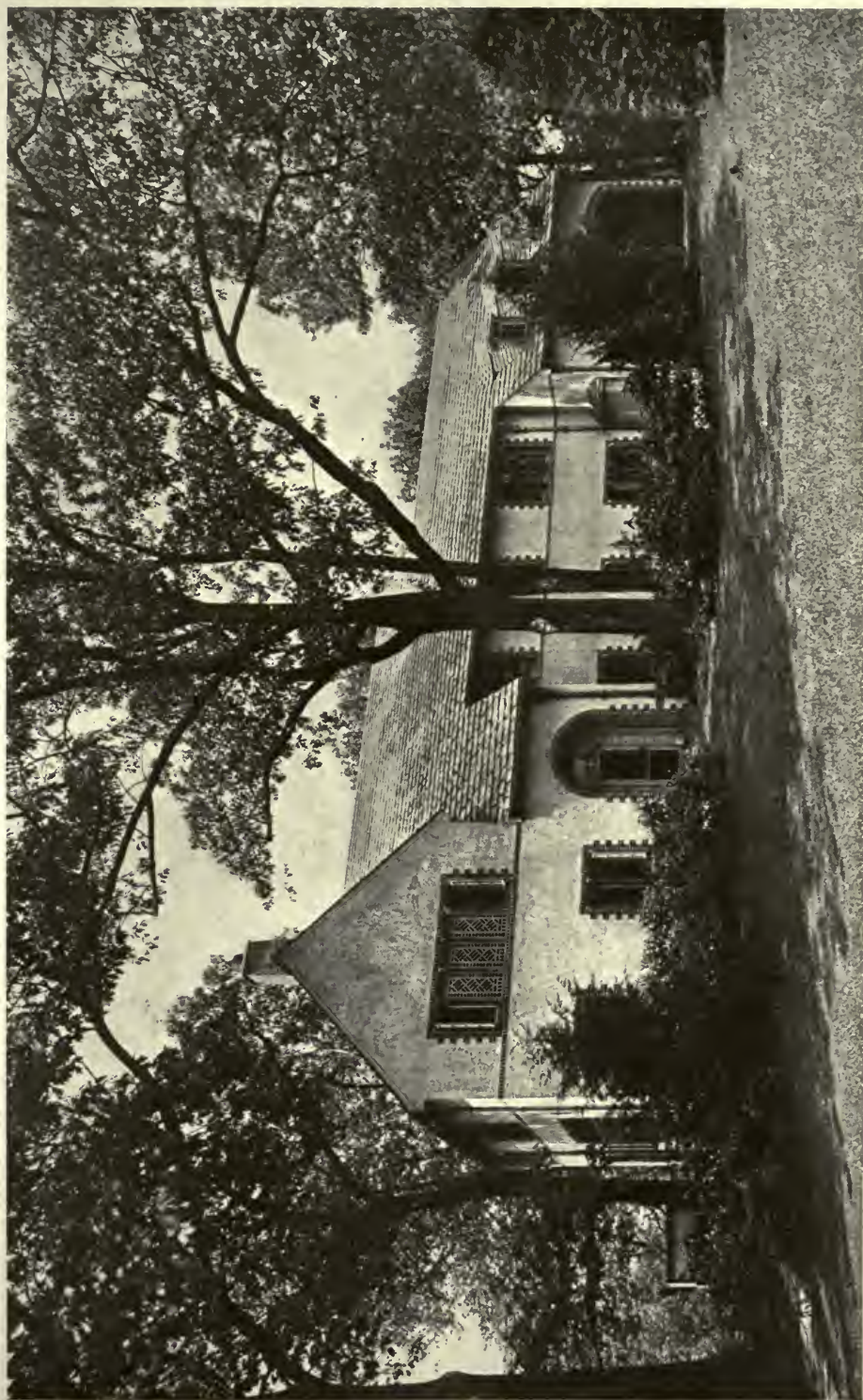
BUNTE BROTHERS' CANDY FACTORY, CHICAGO,
ILL. SCHMIDT, GARDEN & MARTIN, ARCHITECTS.



BUNTE BROTHERS' CANDY FACTORY, CHICAGO,
ILL. SCHMIDT, GARDEN & MARTIN, ARCHITECTS.



RESIDENCE OF WALTER KELLEY, ESQ., RIVERDALE,
N. Y. GEORGE B. POST & SONS, ARCHITECTS.



RESIDENCE OF WALTER KELLEY, ESQ., RIVERDALE,
NEW YORK. GEORGE B. POST & SONS, ARCHITECTS.



RESIDENCE OF WALTER KELLEY, ESQ., RIVERDALE,
NEW YORK. GEORGE B. POST & SONS, ARCHITECTS.



RESIDENCE OF L. K. SCHWARZ, ESQ., SCARSDALE,
NEW YORK. FRANK J. FORSTER, ARCHITECT.



RESIDENCE OF L. K. SCHWARZ, ESQ., SCARSDALE,
NEW YORK, FRANK J. FORSTER, ARCHITECT.



NORTH FRONT—WOODMANSTERNE CORNER, CARSHALTON,
SURREY. ROBERT ATKINSON, F.R.I.B.A., ARCHITECT.



SOUTH FRONT—WOODMANSTERNE CORNER, CARSHALTON,
SURREY. ROBERT ATKINSON, F.R.I.B.A., ARCHITECT.



PORCH — WOODMANSTERNE CORNER, CARSHALTON,
SURREY. ROBERT ATKINSON, F.R.I.B.A., ARCHITECT.



END VIEW OF THE BULL
HOUSE AT WARWICK, PA.

The EARLY ARCHITECTURE of PENNSYLVANIA

PART XIV *Stonework*



By A LAWRENCE KOCHER

OF the many influences that operated to determine the appearance of the early architecture of Pennsylvania, that of materials seems to have been most potent. We noted earlier in this series that this region was unusually well provided with material resources for building; with clay for brick, with timber and stone of excellent quality. The architecture soon reflected this condition, and buildings were shaped that faithfully interpreted the color and rugged character of our country with marked truthfulness. Reginald Blomfield, in his "History of Renaissance Architecture of England" attributed the architectural methods of various districts of England to the physical conditions of the different districts. Where good building stone was abundant, it was used as a matter of course, and an unmistakable local tradition gradually grew together which survived repeated changes of fashion.

It is reasonable to venture the thought that much of our architecture today is out of harmony with our landscape because we have disregarded local materials and local traditions and by whim or fashion have chosen from a country-wide array of new woods, marble, tile, stone and brick. The abundance of building stone on the very site of the colony and the presence of many stone masons who were trained in their craft in England and Wales, went far to influence the extensive use of local stone in Pennsylvania.

The Welsh thoroughly understood the nature and the possibilities of stone, for in Wales it was almost the only building material available. The new country differed but little from their native heath,

so that the continuance of the traditional methods of laying stone was both natural and expedient.

Limestone, sandstone and an easily quarried, thin-layered ledge-stone known as Wissahickon gneiss, are all found in the eastern counties of the state. It was the last named that was so much used in the domestic architecture of Philadelphia and the surrounding vicinity. This ledge-stone or gneiss was very well suited to building of an informal character. It has all the necessary qualities of a good building stone. It was easily obtained under a few feet of digging, it was durable and attractive in appearance. It may be described as a coarse-grained, banded rock characterized by an excess of mica. Cleavage and jointing are conspicuous features, so that it readily splits into long, flat layers with an interesting texture that has been likened to fibrous wood. The color varies from a light warm gray to a yellow shade with brownish-black stain on the joint planes. In addition, it is delightfully enlivened by the prevailing glint of mica.

The nature of this stone determined, in no small measure, the appearance of the resulting architecture. Walls were simple and unbroken by projection; angle stones or quoins were but slightly larger than the stones in the body of the walls (due to the length and the narrowness of the available material); broad masses were a conspicuous feature of the compositions; window openings were boldly spanned by single stone lintels or with flat arches composed of separate stones, and a rugged, picturesque quality was continually manifested.

The effectiveness of the local stone-



MENNONITE CHURCH AT GERMANTOWN, PHILADELPHIA, PA., DATING FROM 1770.

work was largely a matter of producing a patterned wall that was both structurally stable and satisfying and varied in texture and tone. The stone was roughly dressed with a predominance of horizontal lengths. Large and small stones were evenly distributed to produce accents or spots of repeated sizes and shapes, to excellent effect.

In rubble masonry there was no attempt to square-dress the ends or even to maintain parallel beds. A horizontal effect resulted from the prevailing lengths of the separate stones, many of which were three and four feet in horizontal dimension, while the thickness approximated an average of four or five inches. Stonework was treated very much as we would treat a design, with the many component parts of the pattern unified and knit together by means of the pointing of coarse, white mortar. This is an instance of the way these capable builders submitted their work to the principle of unity, and at the same time avoided

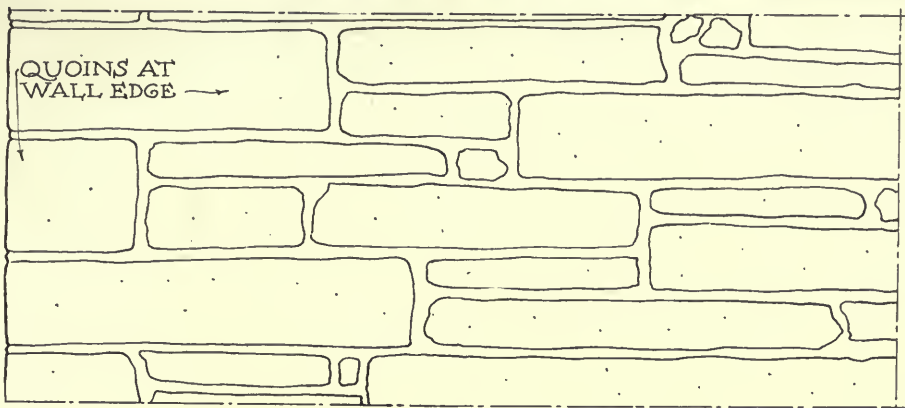
the error of a tiresome uniformity.

The appearance of this stonework can only be fully appreciated by examining the buildings erected of this material on the outskirts of Philadelphia, particularly at Chestnut Hill and Germantown. By such an inspection, alone, can the texture, color and play of light and shade be properly appreciated.

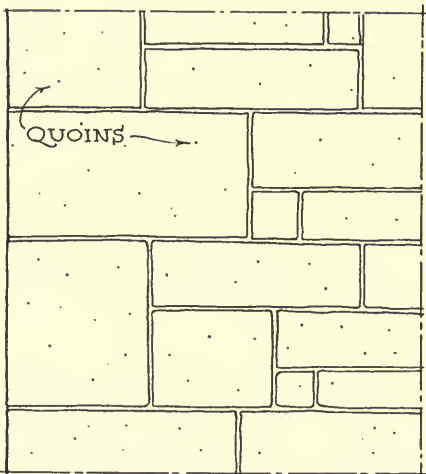
The illustrations accompanying this article give some idea of the methods of jointing that were in vogue in the eighteenth century, and from them we can also better understand the varied effects of different methods of pointing and stone dressing.

The illustration of stonework from a house at Chestnut Hill, built in 1818, typifies a most approved manner of laying stone. The interesting way in which the long stones prevail is noteworthy. The pointing of white mortar gives a finishing touch and appears to have been added after the stonework was completed; in other words, the pointing was

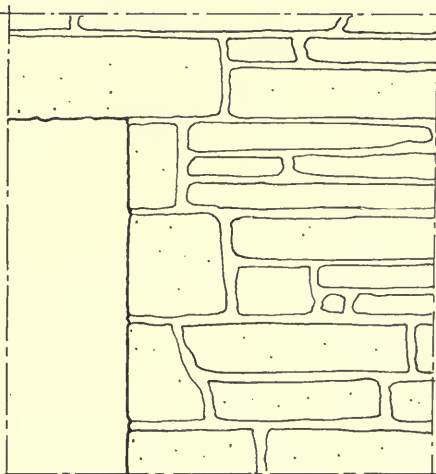
four hundred thirty-six



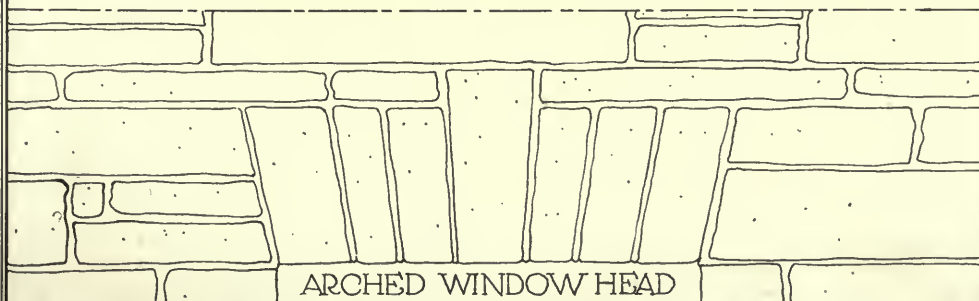
LEDGE-STONE



LIMESTONE OR SANDSTONE



WINDOW DETAIL, STRATIFIED STONE



ARCHED WINDOW HEAD

TRADITIONAL METHODS OF STONE LAYING
INFLUENCED BY THE NATURE OF STONE



THE UPSALA MANSION AT GERMANTOWN, PHILADELPHIA, PA., DATING FROM 1798.



STONWORK OF A BARN AT CHESTNUT HILL, PHILADELPHIA, PA.

four hundred thirty-eight



STONEMASONRY IN WALL OF BARN AT CHEST-NUT HILL, PHILADELPHIA, PA.

a separate process. It is set back a trifle from the face of the stone and is given a "V" shaped or ridge section of scant slope, as the illustration shows.

The stonework of the old barn illustrated is quite similar to the preceding example, with the exception that the mortar in the latter has less finish and was produced with the aid of a trowel as the building up of the stone wall progressed. The excellent workmanship and the variegated texture are displayed to better advantage in another detail view of a similar old barn. Here we can also study the characteristic method of treating the angles, where large stone quoins, twice or three times the average thickness of the stones in the main part of the walls, overlap one another as did the logs at the angles of the log house of pioneer days.

Large stones were also used as "ingoings" and angles at the sides of windows and doors.

It is of some interest to contrast these quoins of ledge-stone with the decidedly larger angles of the Bull house at Warwick. The sandstone of which the Bull house was built, was available in sizes which must have delighted the hearts of the sincere masons, who took an evident pleasure in building up these great courses of masonry. The similar nature of limestone determined again that build-ings of limestone should be given an emphasis at the corners.

four hundred thirty-nine

Upsala Mansion in Germantown illustrates an established custom of giving a special dressing to the stonework of the street elevation. The front of this house is composed of dressed stone, laid as smooth tool-faced and regularly coursed ashlar, while the ends and rear are fashioned of similar stone but of the random masonry that we considered above.

It is reasonable to suppose that the smooth finish of the front elevation was due to the desire to harmonize the classical porch with the building to which it is attached. Such an entry would have appeared incongruous or out of harmony with a rough faced wall. For instance, the correct Georgian design requires a setting of stones dressed to a regular size and shape. This can be appreciated by an examination of a doorway of The Highlands at Whitemarsh—another instance of a tool-dressed wall with an equally ambitious front porch entrance.



DETAIL OF STONEMASONRY, HOUSE AT CHEST-NUT HILL, PHILADELPHIA, PA.



DETAIL OF STONEMASONRY OF BARN AT CHEST-NUT HILL, PHILADELPHIA, PA.



END VIEW OF A HOUSE AT
GULPH, NEAR NORRISTOWN, PA.



DOORWAY OF THE HIGHLANDS,
AT WHITEMARSH, PA.

There are cases in which the stone pointing is set back from the face of the stone with what seems to have been a brushed joint. Still another and more individual method is shown on the walls of the Church of St. James, at Philadelphia. This church has wide mortar joints into which small pieces of stone are inserted. This odd treatment harks back to a practice in Derbyshire and Lancashire in England, where similar joints were termed *garreted joints*.

To again call attention to the way that nature of material influenced design, we refer to the house at Gulph, near Norristown. Here is a building built of brownstone—a material which does not have a smooth quarry face, but fractures irregularly and so is ill-suited to building requirements when not surfaced dressed.

The house at Gulph is built of irregular shaped stones, and the effect is disordered, unquiet and distinctly unpleasant. Perhaps it is because we have become accustomed to masonry laid on horizontal beds that we here object to such a medley of shapes and sizes. It is difficult to conceive of stone so refractory



STONEMWORK DETAIL OF ROXBOROUGH HOUSE, PHILADELPHIA, PA.



DETAIL OF STONEMWORK WITH "GARRETED" JOINTS, ST. JAMES CHURCH, PHILADELPHIA,

that at least a general predominance of straight lines could not be effected with it, and here, in fact, the stone could have been readily cut, as is shown by the carefully squared quoins.

The belt course of brick between the second and third stories and the brick arch over the circular and square headed windows were structurally an advantage, but they are, in addition, a very successful use of a new material and constitute the best feature of the end wall.

The Bull house at Warwick, previously referred to, is also of irregular stone, used in a better way. It is a case of similar stonemwork redeemed by excellent workmanship. There is an absence of unpleasant angles, and the pointing is narrow and sunk beneath the surface of the stone. While there is much to be desired in the way of structural stability, there is, nevertheless, a pleasing texture, and a skilful fitting of stones which possess a genuine charm.

The window lintels are curious but reasonable. They consist of three stones;

four hundred forty-two



THE WENTZ FARM HOUSE AT WHITE-MARSH, PA., DATING FROM 1804.

one for the key block, the other two deeply bedded in the sides above the window jambs.

This is a convenient place to allude to a kind of stonework without visible pointing, which has become popular with a group of present-day architects of Philadelphia, who have carried on in a notable way the traditions inherited from our early history. We may see instances of this stonework in many old houses and garden walls. Its character is fairly well displayed by the illustrations of a part of the wall of Roxborough House, Philadelphia. In this stonework there is no insistence upon outline nor is there the emphasis that mortar joints give to an expanse of wall; but the effect is at once simple and straightforward. In addition, dwellings built by this method have the advantage of appearing old from the day they are erected, and, to quote Defoe, "Were like an abundance of houses newly built which look like old."

We have yet to consider the many dwellings of stone coated with plaster or covered with whitewash. The stucco, as a rule, was of white or of a pale ochre in

color. The practice was not restricted to any particular district, although it seems to have received encouragement from German artisans who were carrying on the methods of their native country.

Technically, we are compelled to question the reasonableness of covering a permanent material with one that is less enduring. From an aesthetic point of view, however, we welcome the picturesque results which it made possible. There are many examples in Lancaster, Lebanon and Berks Counties, roofed with pleasingly variegated red tile (and formerly with thatch) set down on green pastures, shaded by trees. This stucco was known by the English name of "parge" and consisted of lime, sand and chopped straw or hair well mixed together.

Many farmhouses of stone are more interesting because of their porches, with walls made bright by a background of plaster. Certain pretentious dwellings, such as the Chew Mansion in Germantown, combined plaster ends and rear with the dignity of carefully cut stonework on the front wall.



THE VILLAGE OF EYNSFORD, KENT, ENGLAND



MEMORIAL PLOT, MT. PLEASANT CEMETERY, NEW YORK.
C. F. Pilat, Landscape Architect. F. B. Hinchman, Architect.

A CEMETERY PLOT AS A MEMORIAL

*Designed by Carl F. Pilat, Landscape Architect
in Association with Frederick B. Hinchman, Architect*

BY CARL F. PILAT

THE usual conception of a cemetery plot is a piece of ground of sufficient size to permit of the interment of the bodies of the members of the family and to allow space for the erection of as large a monument as the family can afford.

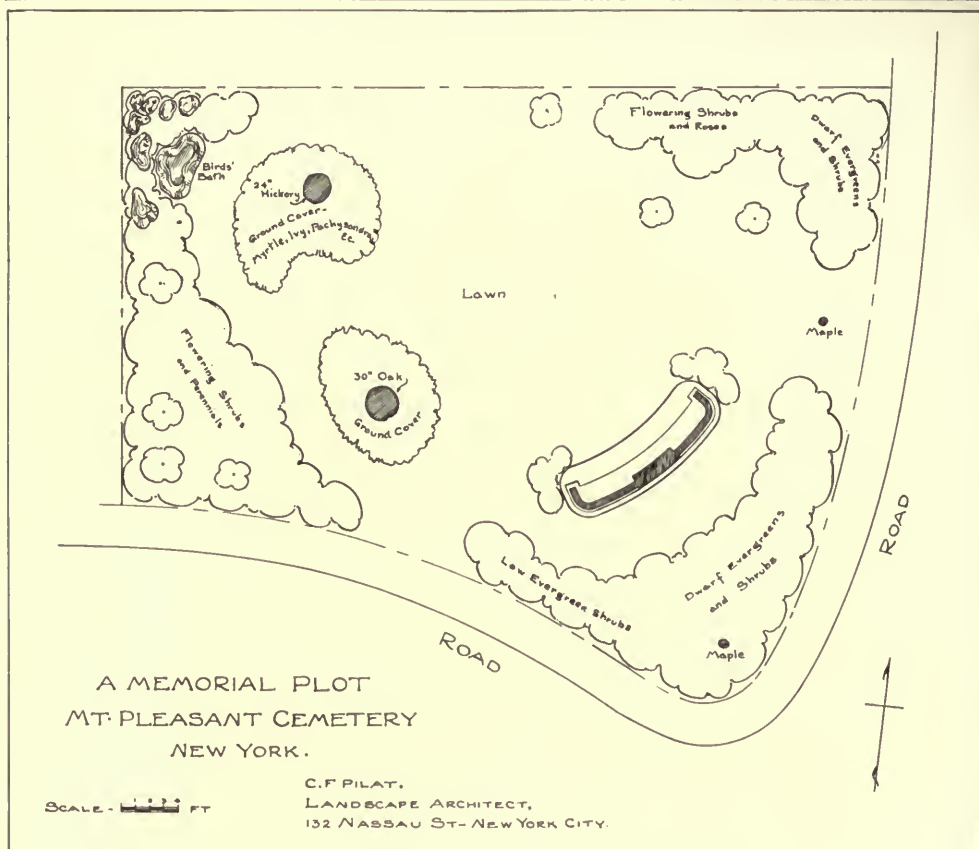
This idea of having a monument as large and imposing as the means will procure has been carried to such an extent in many communities that one may obtain a fairly accurate idea of the relative financial standing of families by visiting the cemeteries and noting the sizes of the monuments.

These more or less pretentious creations in stone and bronze are usually so located that the casual visitor to the cemetery cannot fail to be impressed by them—either favorably or otherwise. It is also customary to feature the names of the departed in conspicuously large

letters, which often remind one of business signs and suggest the competitive side of commercial life.

Most monuments are designed and located on the plot in order to appear to the best advantage when viewed from the main road or walk, and the planting, if any, is arranged so as to accentuate their prominence from the outside point of view of the passer-by.

The average cemetery with its rows of mausoleums, shafts, and other more or less pretentious monuments in close proximity, with their conflicting lines and motives competing for the attention of the passerby, is far removed from the restful place of peace and beauty which we have associated with the place called "God's Acre". In a word, the weaknesses and vanities and the competition and sordidness of everyday life are altogether too much in evidence.



In the case of the memorial discussed and illustrated in this article, it was the conception of the designer and the wish of the owner to make the plot of ground itself the memorial instead of following the usual method of securing a cemetery lot on which to erect a conspicuous structure of stone and bronze.

The owner wished to erect a memorial to her husband which would be adequate and enduring, yet simple, beautiful and free from ostentation or suggestion of worldly importance. An important feature of the problem was to provide a safe and permanent place for the reception and care of the bronze urns which had been designed to contain the ashes of the departed members of the family.

After much consideration it was decided that the crypt should be above ground and be a part of a stone exedra to be hewn out of a single block of

granite. After determining on the form of this feature, the next important step was to select a suitable plot of ground. The plot selected and shown on the plan is located on a hill with an easy slope and commanding an attractive view of the valley below. The soil is of good quality, and there are two large native trees which add very much to the interest and beauty of this very delightful spot.

By referring to the plan it is evident that it was the intention to create a garden spot and to use the sacred feature, the exedra, as the important feature of the design, so placed as to be a part of a harmonious composition from all points of view, an end successfully achieved.

The memorial is a rectangular plot of moderate size and the general scheme of development is *naturalesque*, the only formal architectural feature being the stone seat or exedra which is designed to

four hundred forty-six

serve the double purpose of a garden seat and the repository of the funereal urns.

The design and location of the exedra were carefully considered. It is rather severe in its simplicity, unadorned by moldings or other embellishments and is entirely dependent on its simplicity, proportions and execution for its merit and beauty. It is about twelve feet in length, slightly curved in plan and cut out of a single block of the finest granite.

A crypt, sufficiently large for six bronze urns, is hewn out of the widened central portion, which carries a panel for the inscription of the family name in front. The opening at the back is covered by a bronze door in the form of a tablet on which the names of the departed are appropriately engraved.

The exedra rests on a base cut out of a single block of granite, and the level of the stone tread is carried only slightly above the surrounding grass, so as to preserve the simple lines and low effect. The exedra is made a part of the composition by its location and the arrangement of the foliage masses. Low evergreens flank and partially engage it on either side, and large evergreens, forming a part of the boundary plantations, provide a background of foliage. It was located after due consideration of the two large trees, the formation of the open space of lawn, and of the boundary planta-

four hundred forty-seven

tion which partially encloses the plot. This plantation varies in height and composition and is arranged so as to define and frame attractive vistas and to screen from view surrounding roads, paths and monuments. There are low places and openings to allow glimpses into the plot and provide favorable views of the exedra, rustic bird bath and other features of the memorial plot.

Boulders were placed in the southwest corner of the plot where it was desirable to raise the grade, arranged so as to form a small natural rock garden with dwarf evergreens and rock plants; an added interest in this part is supplied by the bird bath, which is a carefully chosen boulder with a natural basin of adequate size.

The surrounding plantations are composed largely of dwarf conifers and



VIEW SHOWING PLANTING OF DWARF EVERGREENS—MEMORIAL PLOT, MT. PLEASANT CEMETERY, NEW YORK.

C. F. Pilat, Landscape Architect.
F. B. Hinchman, Architect.



VIEW FROM THE ROAD—MEMORIAL PLOT, MT. PLEASANT CEMETERY, NEW YORK.

C. F. Pilat, Landscape Architect.

F. B. Hinchman, Architect.



EXEDRA, WITH EVERGREEN PLANTING—MEMORIAL PLOT, MT. PLEASANT CEMETERY,
NEW YORK.
C. F. Pilat, Landscape Architect. F. B. Hinchman, Architect.

broad leaved evergreens, but the best of the smaller flowering shrubs are used in intermingling natural groups in connection with larger shrubs and a few trees. These bear flowers and berries which in addition to their beauty also attract the birds. Groups of flowering perennials and bulbs arranged along the borders and among the shrubs add to the floral effect, and ferns and ground-cover plants form

attractive masses under the trees and other shaded places.

It has been the aim to create a garden which would be attractive and bright with flowers and berries during the growing seasons, and beautiful at all times because of its design, the formation of the foliage masses and the weaving together of all of the features to form a harmonious and pleasing composition

SCALE IN ARCHITECTURE

By
Ernst Jonson

ONE of the first requirements of an architectural composition is that it be a unit. Every part of it must belong to the whole. One of the basic conditions of unity is continuity of scale. Unwarranted and sudden breaks in the scale of a composition destroy its unity, and such breaks in scale are not uncommon in modern work. They occur because features from different buildings are incorporated into the work without being first transposed into the scale of the new design. Consistency, however, is only one of the requirements which the scale of a building must fulfil. The scale also must be appropriate to the function and meaning of the building, to the material in which it is executed, to the climate, and to the view-point from which for the most part the building is seen. Monumental buildings demand larger scale than dwellings. Bridges which are seen only from a distance must be large in scale. For the same reason the detail of the upper portions of high buildings must be of large scale. The use of a coarse grained stone suggests detail of larger scale than might be used with a fine grained stone, while work executed in wood may be exceedingly delicate. Furthermore, it is evident that exposure to a severe climate does not justify the use of very small detail. In interior work, on the other hand, there is no restriction in this direction.

In architecture, apart from the magnitude of the structure, there are two principal elements of scale which demand the attention of the designer. One of these is the scale which determines the over-all dimensions of the principal motives, that is to say, depths of entablatures, cornices, string courses, bases, and the height and diameter of columns. The other is the scale of the detail, that is, the scale of the component parts of these motives—of members of cornices and of mouldings.

four hundred forty-nine

The scale of the dominant motives is one of the more potent determiners of the character of a building, more so even than the magnitude of the whole structure. A column five feet in diameter means something quite different from a similar column five inches in diameter. And there is more power in one sixty foot order than in twenty tiers of twelve foot orders.

When an order forms the dominant motive of a composition the problem of motive scale is simple. Then, obviously, the module, or half column diameter, is the most convenient unit of this scale, and with the determination of the size of the module, the problem of motive scale is solved. In the absence of a principal order the problem is not so easy. In a façade with cornice, string courses and window motives, there is not a single dimension which is a function of the module alone. The over-all dimensions of every motive in the façade are also functions of the main dimensions of the façade. In choosing the motive scale for such a façade, therefore, the designer must turn to past work for guidance. For example, we know from analysis of the façade of the Farnese Palace in Rome that its scale is such that the height of a story is about seventeen modules. The more simply a façade is treated, the larger motive scale does it require. Thus in the façade of the Strozzi Palace in Florence there are only about eleven modules to the story. When no adequate precedent exists the proper scale can be found only by trial. The preliminary sketch may be analyzed for its scale, and the scale thus found may then be made the basis of the second draft. If the proportions thus obtained are not satisfactory, the scale must be changed and another draft made.

In a structure of more than one story the motive scale should decrease toward the top. The reason for the feeling that the scale of an upper story should be

smaller than that of the story below evidently lies in our sense of structural fitness. This need is especially obvious when an order is superimposed on another. The decrease in motive scale should be gradual, not exceeding one-sixth per story. Under no circumstances is an abrupt break in scale permissible. And to make the scale of an upper story larger than that of the story below is inexcusable.

While the principal dimensions of doorway and window motives are governed by the dominant motive scale, there may be features of such motives which demand a scale of their own. Thus, for example, the order of a doorway may be proportioned on a scale smaller than the dominant motive scale, so that we may have a sub-motive scale, but this scale must in some way be kept in its secondary position by some definite and dominant manifestation of the scale of the whole.

When an architectural scheme is to be adapted for execution in wood the change of material, apart from any other consideration, involves a change of scale. This change affects the transverse dimensions only, that is to say, the size of the module changes apart from any change in longitudinal dimensions of the motive, such as height of columns. In some of the work of the American-Georgian period the reduction of the module amounts to one-half, but the average motive scale for the best work of this period is about three-quarters of the scale which would be used if the scheme were designed for execution in stone. This means of course that the proportional height of the column is one-third greater for wood than for stone.

In metal work, the scale is reduced in the same manner but to an even greater extent, and in wrought work, the reduction is greater than in cast work.

Even the size of the window glass is not wholly unrelated to the motive scale. Small scale in the architectural motives requires correspondingly small window-panes, if one is to be consistent.

The other element of scale is the detail scale. This is the scale which governs the sizes of the separate mouldings, fillets, beads, brackets, and so forth. In

the Roman temples the detail scale did not vary independently of the motive scale. In the Corinthian order the part, which is the unit of the detail scale, was about one-twenty-fourth module and in the Ionic and in the Doric order one-twentieth module. This is indicated by the size of the small fillets, which may be taken as equal to one part. Hence Vignola makes the part a constant fraction of the module. But in the best work of the Italian Renaissance the part becomes an independent variable, the detail scale frequently being as much as one-half larger than in Roman work. The study of Vignola's orders has inculcated a sense of rigidity of Classical proportion which is neither essential to it nor conducive to vitality in architecture. A fuller realization of the essential independence of the detail scale seems to be one of the needs of modern architecture. Variations in detail scale greatly alter the character of an architectural composition, so that by treating the detail scale as an independent variable the range of expression of Classical form is greatly increased.

In choosing the detail scale not only must the meaning of the building be considered, but also the nature of the material, the atmospheric conditions, and, above all, the distance from which its various parts are to be seen. Since the detail of the upper portion of a façade will be seen from a greater distance than that of the lower portion, the detail scale should be increased toward the top. In the façade of the Farnese, for example, the detail scale of the main cornice is one half greater than that of the ground story. Some of our high buildings might have been improved by a fuller application of this principle. On the other hand, the detail scale of doorways is in many cases made smaller than that of the rest of the ground story, which seems justifiable insofar as the doorway is frequently seen from a shorter distance than the rest of the building. For the same reason interior work for the most part is of small detail scale.

When the detail scale has been determined upon, every part of the composition must be made to conform to it.

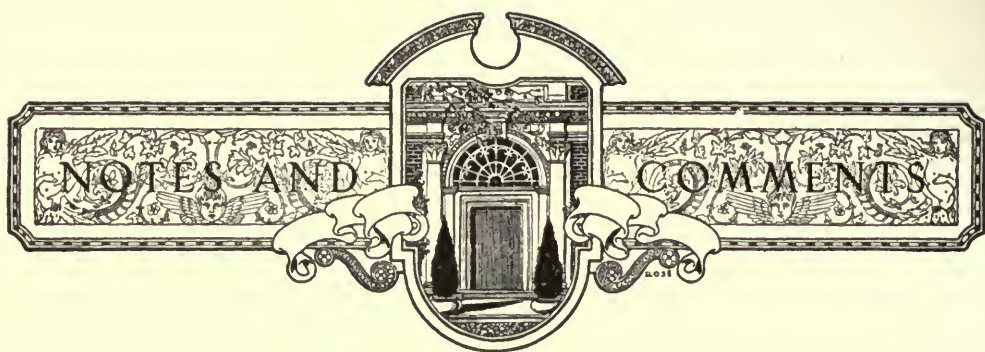
An undigested jumble of beautiful motives cannot be called architecture.

The main impost of the Arch of Constantine in Rome is a striking example of unwarranted deviation from the general scale of a structure. A full Corinthian cornice was used as an impost. This necessitated a much smaller detail scale than that which prevails throughout the rest of the structure. Before using a feature in a composition its detail scale should be made to conform

to the scale of the portion of the structure into which it is to be incorporated. This may involve radical re-designing. If the scale has to be substantially increased the feature must be correspondingly simplified. A Corinthian cornice may have to be reduced to an Ionic cornice, and if then the scale cannot be made large enough a member may have to be dropped from the bed mould and perhaps also the cymatium omitted from the corona.



A LYCH-GATE IN KENT, ENGLAND



A Miniature Desert in the Heart of the City

It is quite unusual to have a desert in one's front yard, but there is a tiny but impressive one to be seen before the office of Ford & Becker, realtors, on Western Avenue, Los Angeles. There, on either side of the attractive entrance, can be seen a miniature desert—the real thing minus only miles of desolation and a far-off horizon. The curious plants have been brought, each and every one of them, from either the Mojave Desert or Imperial Valley, and the old-timer may recognize the common or "Hairbrush" Cactus, the Giant Cactus, the Barrel Cactus, the Desert Palm and half a dozen others. If you were lost in the desert (not this one, but on a larger scale) and had no water you might save your life by slicing the top off one of these Barrel Cactuses and extracting the fluid.

If you look closely you may also see a number of bleached animal bones brought a distance of 175 miles or so to finally rest

here. Also there is pumice stone, which appears to be plentiful in Inyo County, and might perhaps be developed commercially.

This miniature desert has caused much comment from the public and possesses, as may well be supposed, a distinct advertising value. For instance, one man from Chicago inquired about this feature and eventually was sold property to the value of \$65,000. It sometimes pays to have a miniature desert around, doesn't it?

"The little pink building with the cactuses in front" is the way people very frequently refer to this place; and so it needs no extended dissertation to prove that a miniature desert may be the means of fixing your place of business in the minds of the public at large.

The building itself is worthy of comment. Not only is the exterior effective, but the interior is developed in a manner which is very interesting and extraordinarily attractive. Each room seems to have an air of quaintness and comfort about it. An up-to-date real estate business need not



MINIATURE DESERT BEFORE THE OFFICES OF FORD & BECKER, REALTORS,
LOS ANGELES, CAL.

H. H. Whiteley, Architect.

be housed in plain and severe-looking quarters, but may profit in more ways than one from beautiful surroundings.

The moving picture folk have used this setting on a number of occasions. There is another garden—if we may term the little desert as such—in the rear; and altogether it is probable that all Los Angeles contains no other place comparable to this. The idea of the building is to be credited to Mr. Ford; the architect is Mr. Harry H. Whiteley.

CLARENCE M. LINDSAY.

**Ventilating Code
Submitted for
Approval by
A. E. S. C.**

The code for the ventilation of public and semi-public buildings adopted by the American Society of Heating and Ventilating Engineers in 1915, has been submitted to the American Engineering Stand-

ards Committee for approval as American Standard.

This code was prepared by a committee of the American Society of Heating and Ventilating Engineers in response to requests from state commissions, legislative bodies, public health agencies and other organizations for suggestions to be used in the preparation of legislation and regulations regarding the heating and ventilation of buildings. The committee endeavored in this code to cover the general features most essential to the public health, in such a manner as to protect the public with the least possible expenditure for equipment and without unnecessarily limiting the methods of obtaining the desired results.

Section 1 of the code relates to general matters pertaining to all classes of buildings; the remaining three sections relate to schools and colleges, factories, and theatres, respectively.

Among the States that have utilized parts of the code in their regulations are: Illinois, Indiana, Kansas, Massachusetts, Minnesota, New Jersey, New York, Ohio, Pennsylvania, Utah, Virginia and Wisconsin. A thoroughly representative special committee, including all the important organizations interested in the subject, has been appointed by the American Engineering Standards Committee to investigate the status of the code in the industry and the desirability of approving it. Sidney J. Williams, Chief Engineer of the National Safety Council, is chairman of this special committee.

The American Engineering Standards Committee would be very glad to learn from those interested of the extent to which they make use of this code, and to receive any other in-

four hundred fifty-three

formation regarding the code in meeting the needs of the industry.

**Real
Furniture**

The best modern furniture usually is that copied from good examples of Renaissance work. The aim of makers of fine furniture is to produce work so like the old that one cannot detect the difference. That the new piece be constructed like the old is not regarded as essential. Nor are some modern furniture builders concerned about the way in which time and wear will affect their work. So long as it retains its likeness to its prototype until it is sold, they are satisfied, and what their work will look like ten years hence or a hundred years is not a matter of vital interest.

The operations by which the modern manufacturer seeks to realize his ideal of exact imitation, are called "antiquing." For the most part this process of antiquing is applied by men without the requisite skill and utterly lacking in appreciation of the beauty of old work. Hence antiquing usually degenerates into a uniform coating of dark stain which destroys the color of the wood without producing the least suggestion of age. On the other hand there are makers of furniture who have brought the technique of antiquing to the highest point of development of which it seems capable. However, a new piece of furniture, even when antiques with the greatest skill, never looks like old work to anyone who is familiar with it. The reason for this failure is that the antiqued reproduction lacks one of the essential characteristics of old work; it lacks *reality*.

A new piece of furniture while in the wood, that is, before any finish has been applied to it, looks raw, but there is about it an air of reality which is dissipated by the application of the usual finish. That is to say, good furniture, while new, must necessarily look as the old furniture did when it was new. The result is that time and wear affect good furniture in the same way as they have affected the old work. Every year's use obliterates some of the difference between the new and the old. After a couple of years the greater part of the difference has disappeared, and within five years the inimitable charm of genuine aging begins to show itself.

The antiqued reproduction is very differently affected by wear. In a few years its make-believe antiquity will deteriorate

into shabbiness and dinginess. The antiquing, unless done with unusual skill, wears off on the edges. And instead of the rich patina which real furniture acquires with age, a distressing dinginess has developed. One of the characteristics of a genuine work of art is its ability to withstand the ravages of time without losing its artistic quality. No matter how faded and stained and worn and broken it may be, the artistic content remains. The antiqued reproduction, on the other hand, cannot stand the test of time.

Another quality essential to reality in furniture, is workmanlike construction. The mediaeval framers perfected the art of timber construction. When with the advent of the Renaissance the art of furniture building came into prominence, the principles of the framer's art were adopted by the cabinet makers. During the sixteenth and seventeenth centuries every considerable piece of furniture was built on a properly constructed frame. This frame consisted of posts connected by stretchers tenoned into the posts and secured by pins passing through the post and the tenon. It was under the guidance and limitation of this basic structural requirement that the best types of the Renaissance were evolved. Without the inspiration and restraint of a workmanlike concept of construction, no designing in the true sense, whether in architecture or in the minor arts, is at all possible. In all true furniture designing the essential frame must appear as the dominant motive. When this concept of an essential frame is absent the designer, no matter how clever he may be, is quite at sea. If that is so, why not build the piece as it was thought out in being designed? We know that the tenoned and pinned frames of the Renaissance are more reliable than the dovetailed or doweled frames of the eighteenth century. Furthermore, good framing practice satisfies the instinct of workmanship in a higher degree than the less workmanlike forms of construction. The only thing that can be said in favor of doweled frames is that it is cheaper than cutting a mortise and tenon, but the difference in cost is not appreciable, and certainly not commensurate with the difference in quality.

Another characteristic of truly craftsmanlike furniture construction is that every member is formed of one solid piece of wood. In modern furniture the heavy members are almost always built up of thin lumber glued together. This practice simplifies the problem of stock. Thin lum-

ber is also more quickly seasoned than heavy. Apart from the relative unreliability of glued joints, they always detract from the artistic quality of the work. Continuity of natural grain broken only by definite lines of framing, is one of the essentials of truly craftsmanlike work. To use glued joints in tops of tables and chests may be excusable, but there is no need for gluing up posts or panels. Even tops can be framed and paneled flush so that their integrity is not dependent on glued joints. Well seasoned, full sized lumber will always be one of the essential requirements of workmanlike furniture. And if seasoning cracks should appear in heavy posts this is not necessarily an occasion for regret. Such cracks rather add to than detract from the interest of the work. On the other hand, a glued joint which has opened is nothing but a defect. Workmanlike wood construction is not injuriously affected by variations in moisture, for its design is such as to make allowance for shrinkage and swelling.

In wood work, the right finish is fully as important as right construction and right design. The first requirement of a wood finish is that it be unobtrusive. It is the wood that we want to see and feel, not the finish. The purpose of the finish should be to bring out all the potentialities of color inherent in the wood, not to change the natural color. The natural color of wood cannot be improved by artificial means. Any attempt to do so invariably results disastrously. Any finish which involves the use of stain or pigment ruins the natural color of the wood. Other proper functions of a finish are to keep the wood clean, and to protect it from mechanical injury by hardening the surface.

When a piece of furniture has been built it should be washed with water to raise the grain and then left without finish and exposed to strong light as long as practicable. A few weeks of such seasoning will take away the rawness of the newly cut wood and give it quite a tan. Then the roughness of the surface should be taken off by light sandpapering. When the desired surface has been obtained it should be filled with bees-wax softened with turpentine or with kettle-boiled linseed oil. Wax gives a light finish, oil a dark finish. On light wood, oil is generally preferable because it produces a warmer and richer color than wax. Oak, when finished with kettle-boiled linseed oil, takes on a beautiful, rich, brown yellow color. Wax brings out the color of walnut most

satisfactorily. Oil, however, produces a hard non-absorbent surface which is not stained by water or by hot dishes, and makes, therefore, an ideal finish for dining room furniture.

In applying either wax or oil, all surplus material should be wiped off, and the surface rubbed till dry. Every additional application adds to the richness of the surface. One waxing results in a subdued polish, while it takes two or three coats of oil to produce the same effect.

The capital difference between the ordinary antiqued reproduction and a piece of real furniture, however, lies not immediately either in the construction or in the finish, but in another distinct quality, absent in one and present in the other. Every honestly built and frankly finished piece of furniture inspires us with a strong sense of reality. This reality is not a mere conceptual attribute imposed on the work by our conscious thinking, but it affects us as a power inherent in the work itself. Without it the most beautiful combination of line, proportion and color results in nothing more than a representation or imitation. We may enjoy a good antiqued reproduction on account of its lines and its proportions. We may even by the aid of our imagination visualize it as a genuine old piece, but the reality thus imparted to a work is a thin, evanescent reality. The inherent powerful reality of an equally well designed but frankly new piece is quite a different thing, not to mention the still more powerful reality of the original, for this quality of reality is a thing which time augments.

As a result of the bond of reality which unites frankly finished and rightly constructed new work with old work, such new work can be placed next to old work without being thereby discredited. The antiqued reproduction, on the other hand, when placed next to genuine old work always looks mean, ridiculous and contemptible.

ERNST JONSON.

The Le Brun Scholarship Committee of the New York Chapter A. I. A., Julian Clarence Levi, Chairman, announces the holding of a competition for the award of this scholarship for the year 1923. The application and nomination blanks can be had of the Secretary of the various Chapters, A. I. A., or the Le Brun Scholarship Committee, New York Chapter, A. I. A., 215 West 57th Street. The programme will

be issued towards the end of December and the competition drawings will be rendered about March 1, 1923.

An Advance in Economical Construction

The new construction classification just announced by the Underwriters Laboratories of the National Board of Fire Underwriters, opens the way for a considerable extension of economical house construction. The new classification consists of ordinary wood construction with metallic lath and gypsum plaster covering. The engineers have found that such construction will resist an unusually severe fire for longer than an hour, and accordingly have given the high insurance rating of "one hour" to floors and bearing walls so constructed.

A step further in the same direction, which is not improbable, will have a very beneficial effect on the "twilight" zones of many American cities. The new classification applies only to interior work, gypsum plaster not being adapted to weather exposure. It is hoped that eventually a like ruling will be made for frame construction with stucco exterior surfaces of some sort of plaster on metal lath.

Even limited to interior construction, the new rating is of great importance. Though it does not result in lower insurance rates on frame construction, it contributes greatly to safety and fire-resistance in both ordinary and frame construction, and will justify building codes in broadening the zones within which frame construction is permissible. As about three-fourths of American buildings are of frame, any innovation which increases their resistance to fire is of the utmost importance. In all American cities lumber is still the most economical material for dwelling construction. Consequently, the undue extension of fire limits into residence quarters often imposes heavier construction costs than property and rental values will bear. This has resulted in the "twilight" zone or no-man's land of stagnation and decay which is apparent in so many otherwise vigorous American cities. As property owners have found that beyond a certain point within the fire limits it is unprofitable to improve or rebuild in accordance with building code requirements, old structures have not been replaced and have been allowed to deteriorate and become the shelter of shabby businesses and slatternly homes.

**May Enter Hos-
pital Competition
Until December
15**

Thirty days have been added to the original registration period for entry in the \$1,000 prize competition for small hospital plans which is being conducted by *The Modern Hospital* magazine, according to a recent announcement. This advances the final day for registration to December 15 and extends the date for submitting designs to February 1.

Inquiries about the contest from architects in England, European countries and even New Zealand have necessitated an extension of the period for registration. Although foreign interest was scarcely anticipated, owing to the vastly different conditions governing hospital construction abroad, the competition is open to all architects and any such designs will not be excluded.

A jury of award is soon to be announced, its personnel to include two architects of recognized standing, two seasoned hospital superintendents, and one registered nurse who has had experience in small hospital administration. Details of the competition are furnished at the Chicago office of *The Modern Hospital*.

On the recommendation of the Engineers' Club of Philadelphia, and the Philadelphia Chapter of the American Institute of Architects, Dr. Paul Philippe Cret and Mr. E. B. Temple have been designated as Architect and Engineer, respectively, to take charge of the preliminary planning of the Sesqui-Centennial Exhibition to be held in Philadelphia in 1926 in celebration of the 150th anniversary of the Signing of the Declaration of Independence. Mr. Temple, in consultation with the Engineers' Committee, and Dr. Cret, in consultation with the Architects' Committee, will select their associate engineers and architects. They have volunteered their services as a matter of civic pride and will act without compensation for this preliminary work.

Architects and specification writers will probably find much of interest in the National Exposition of Power and Mechanical Engineering, to be held at Grand Central Palace, New York, from December 7th to 13th. Many of the exhibits will consist of equipment used in the construction and operation of large city buildings, industrial plants, etc.

The Architectural Record,
New York City.

Dear Sirs:

In the September issue of the "Architectural Record" we note that you have published under current Architecture, two interiors titled "Chapel of the Mediator of Holy Trinity Parish, Philadelphia,"—"Thomas, Kirkpatrick & Martin, Architects."

We do not know who could have given you this title, for the chapel of the Mediator has nothing to do with Holy Trinity Parish, but is a Chapel of the Church of the Holy Apostles. There is no such firm as Thomas, Kirkpatrick & Martin, but a firm Thomas, Martin & Kirkpatrick; and furthermore the Church was not designed by that firm, but by myself individually before we became associated.

We would greatly appreciate your noting correction of this error in your next issue, which has been specially requested by the Rector of the Church.

Trusting that you will kindly make this notation and correction, I remain,

Yours very truly,

WALTER H. THOMAS.

Stanley Bruce Elwell and Robert Murray Blackall announce that they will associate in the practice of architecture under the name of Elwell and Blackall, 44 Bromfield Street, Boston, Massachusetts.

Mr. H. George Fink, A. I. A., of Miami, Florida, has removed his office from the Republic Building to Suite 301-340 in the Merrick Building, and desires catalogues and samples of all materials for his sample room.

Mr. Henry Calder Thomas, registered architect, announces the opening of his office at 139 East State Street, Ithaca, New York, for the general practice of architecture and landscaping.

Mr. Francis Chiaverini announces his partnership with Mr. Blank (Chiaverini & Blank) with office at 32 Broadway, Providence, R. I.

Mr. C. Davis Goodman, announces the opening of an office, Suite 34, 14 St. John's St., Montreal, Que., Canada, and desires to receive manufacturer's catalogues.

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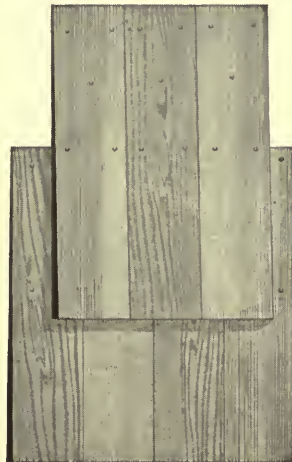
For the convenience of architects and builders, we have recently issued our "Construction Digest" and our "Engineering Digest" which either our New York or Chicago office will gladly forward, together with any additional information which you may desire. Write for them.

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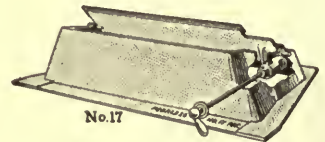
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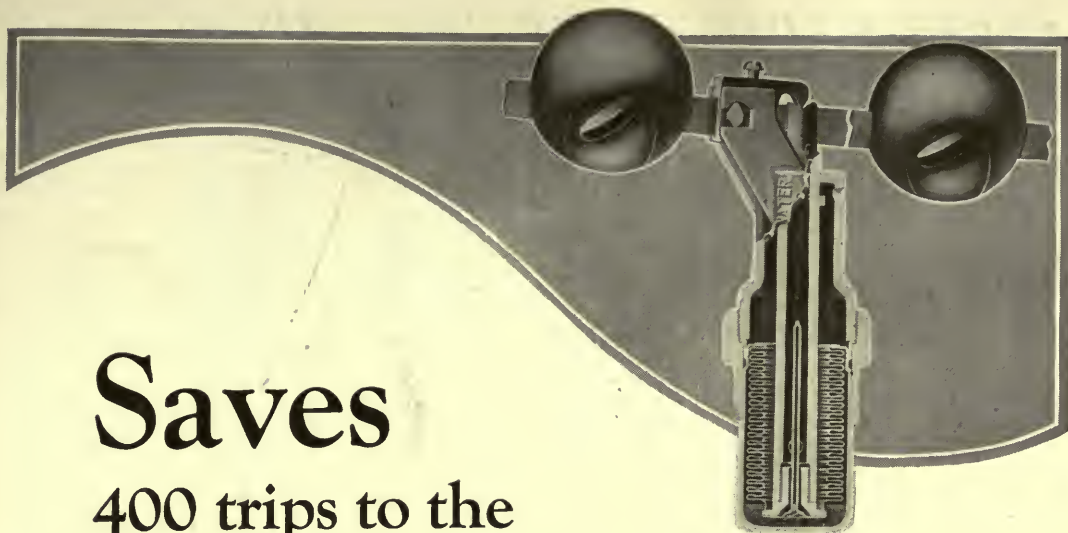


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Operated from chimney breast at right of fireplace, as in illustration above.

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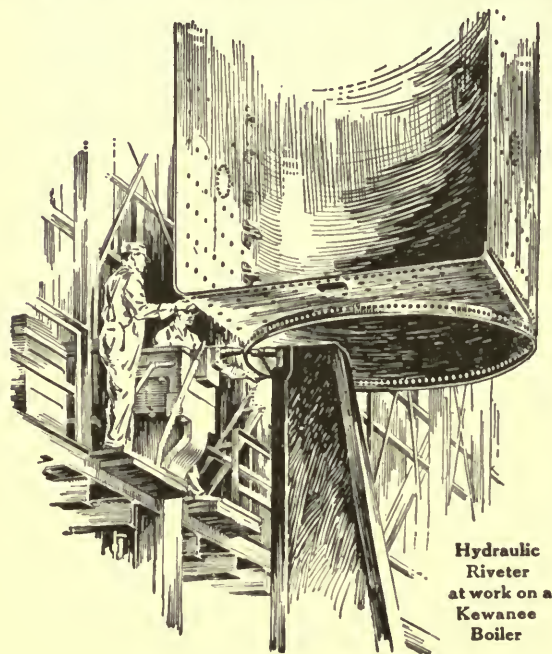
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The mantel, of walnut, is exquisitely carved in the Renaissance manner, the fireplace being red Numidian marble. The walnut furniture is Italian Renaissance, although period is not closely observed. Hangings and upholstery are wine-colored, the carpet in the same tone, blending delightfully with the walnut wall panels.

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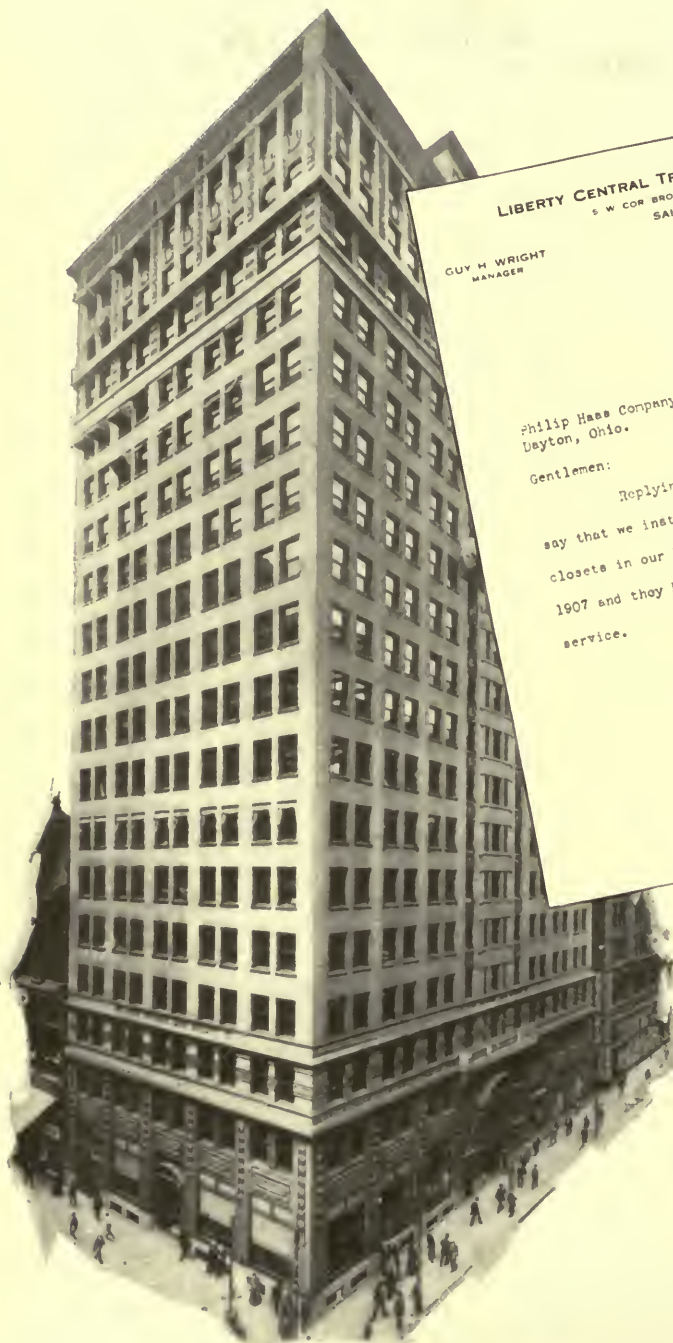
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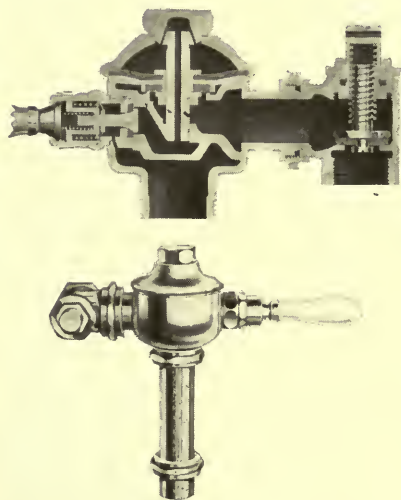
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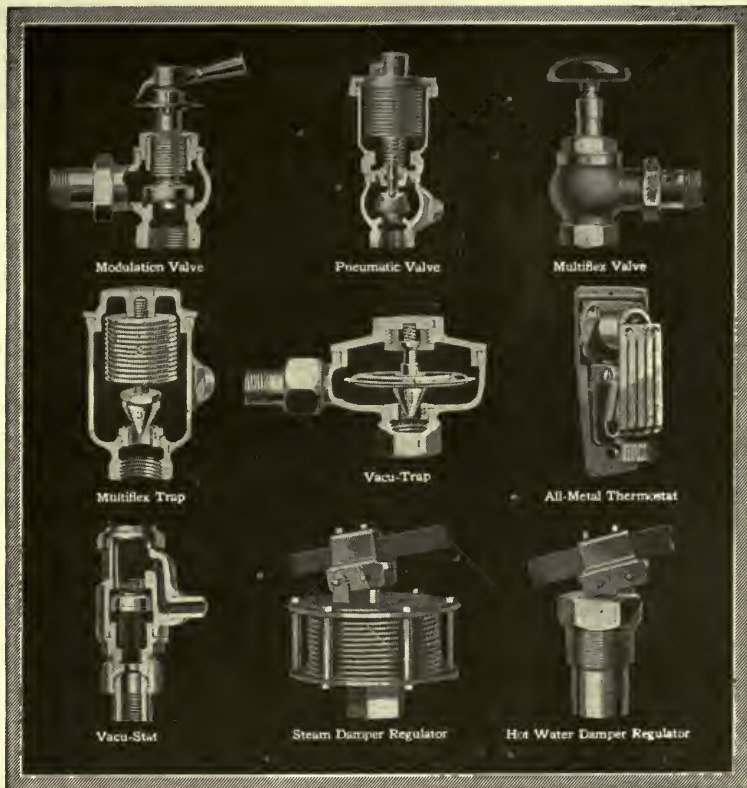
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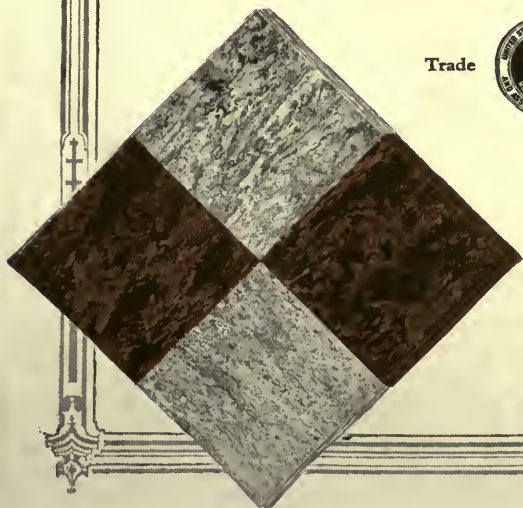
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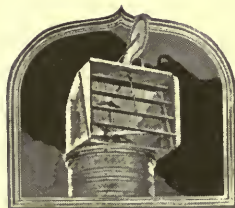
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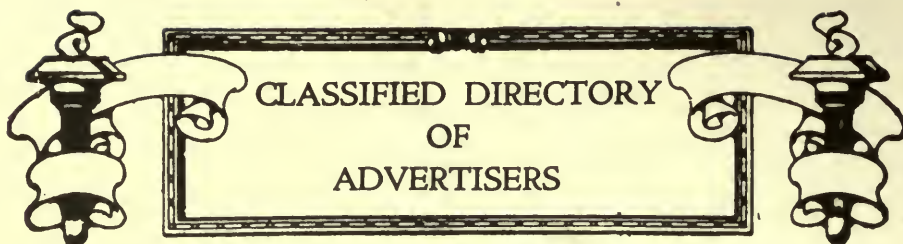
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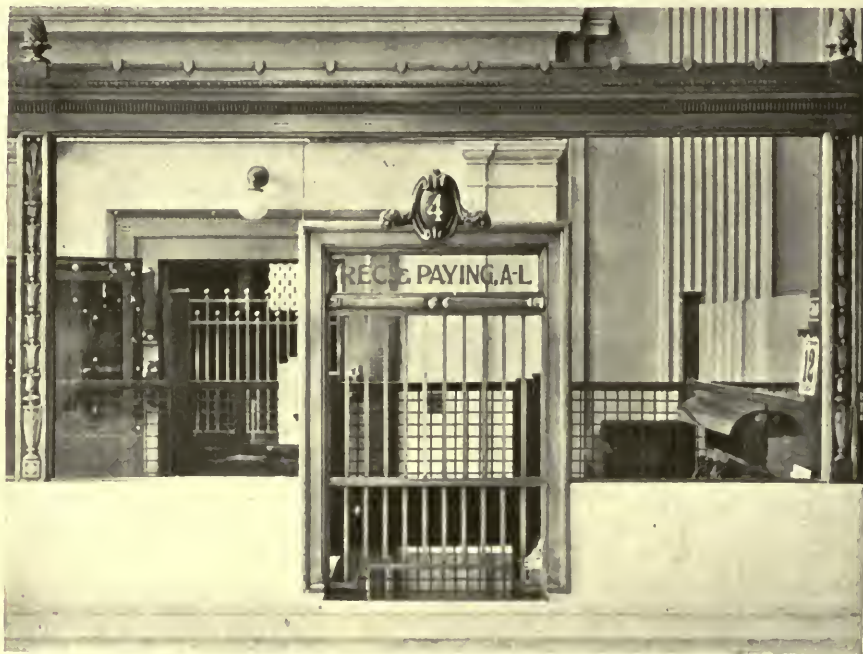
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BOOK REVIEWS

Exercise in the Elements of Descriptive Geometry, by Richard Shelton Kirby, C. E. New York: John Wiley & Sons, Inc. 1922. 10½ x 7 in. 49 p. \$1.00.

A collection of nearly 900 exercises, supplemented by varied and interesting practical applications. The exercises are devised to be capable of solution within space limits, and have all been thoroughly tried in classes.

It contains: Directions to the Student—Preliminary Drill in Plotting Points, Lines and Planes—Three Fundamental Problems—Problems in the Point, Line and Plane—Practical Applications—Plane Sections—Intersections of Surface.

The A B C's of Calculus, by C. C. Carpenter, C. E. Ada, Ohio. Published by the Author. 1922. 4¼ x 6½ in. 78 p. \$1.50.

"The examples chosen to illustrate the different applications of differential calculus are very practical. They have been made so to impress upon the student the fact that calculus is a very practical and useful science, and that its application is not a very difficult operation." Introduction.

By practical example and illustration, first using purely geometric methods, the author tries to aid the student in calculus to visualize by means of drawing, some of the elementary concepts and distinctions between formulae. The analytic method follows.

The book is intended as an aid, to be used in connection with a text book for the study of calculus, and is intended to make the study of calculus more interesting and easy.

Le Chateau de Dampierre en Champagne. The story of Dampierre, and the beginning of the chateau. Paris. Imprimerie de l'Art. 1922. 5½ x 7¾ in. 64 p. ills. 4 fr. 50.

On the site of what had been originally a Roman camp, commanding the Bale to Chalons, the chateau was begun soon after Roman occupation and the lord of Dampierre lived in it in 980.

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This brochure, with its sketchy history of a fine mediæval chateau, and its illustration of exteriors and its more modern interiors belonging to the period of Louis XIV to Louis XVI, is very interesting from the decorator's point of view as well as from the point of view of the student of the history of architecture.

Fundamentals of Mechanical Drawing, by Professor Richard Shelton Kirby. New York: John Wiley & Sons, Inc. 1922. 89 pages. 10 x 6¾ in. Illus. Cloth. \$2.00.

A concise text for the first-year college or technical school course. Three hundred and fifty carefully arranged problems are given.

Elements of Specification Writing. Second Edition Revised, by Professor Richard Shelton Kirby. New York: John Wiley & Sons, Inc. 153 pages. 6 x 9 in. Cloth. \$1.50.

A textbook on the art of specification writing and a valuable reference book for the young engineer in practice.

Practice Tablet for Inclined Single-Stroke Freehand Lettering, by Professor Richard Shelton Kirby. New York: John Wiley & Sons, Inc. 1922. 25 ruled sheets. 5 x 8 in. 35 Cents.

A compact and practical tablet, with a concise analysis of the shapes of letters and numerals, and explicit directions for use.

Sheet-metal Pattern Drafting and Shop Problem, by James S. Daugherty. Peoria: Manual Arts Press. 1922. 173 p. illus. ob. 4°. \$2.50.

Well printed quarto text book prepared for the use of students in the vocational, trade, technical or high school; also adapted for reference use by draftsmen, shop foremen and metal workers engaged in laying out patterns for general sheet metal work, heating, ventilating, cornice, skylight and heavy plate work. Part one covers drafting principles; part two: parallel line developments; part three: radial developments. Has many illustrations and drawings. The author is on the staff of the College of Industries, Carnegie Institute of Technology, Pittsburgh, Pa.

The Design of Masonry Structures and Foundations, by Clement C. Williams. New York: McGraw-Hill Book Co., Inc. 1922. viii, 555 p. illus. 8°. \$5.00.

In this work by the Professor of Civil Engineering in the University of Kansas a knowledge of mechanics is assumed on the part of the reader. Extended discussions of disputed theories and of variation in design are purposely avoided. The book covers general principles, masonry laid in mortar, plain concrete, reinforced concrete, arches, dams and sea walls, retaining walls and quay walls, bridge abutments and piers, viaducts and trestles, culverts and underground conduits, bins and chimneys, forms and falsework, foundations on dry ground, open foundations under water, and the pneumatic process of constructing caissons. Attention is given to the architectural appearance of structures.

The American Architect Specification Manual. A compilation of specifications of advertised materials and accessories as prepared by representative manufacturers for use by architects and architectural engineers. New York: The Architectural and Building Press, Inc. Vol. 4. 1922. Size 8½ x 11 in. xi. 252 p. \$2.50.

In an endeavor to assist the person unaccustomed to writing specifications in a methodical manner and the hope that those more hardened to the exigencies of the work might find some additional profit in the manual, new Divisions have been added, namely: The Specification Writer; the Construction of a Specification; and the Rules for Checking Drawings. The Standard Documents of the American Institute of Architects have been included in this edition, their incorporation in previous editions having been generally commended.

The Manual contains:—Index by Manufacturers—Index by Materials—Index by Trade Names—The Specification Writer—The Construction of a Specification—Rules for Checking Shop Drawings—The Writing of Specifications—Preparation of Specifications—Legal Don'ts—Specification Don'ts—Specification Checking List. The Specification Manual subjects are arranged logically according to the progress and variety of the work under construction.



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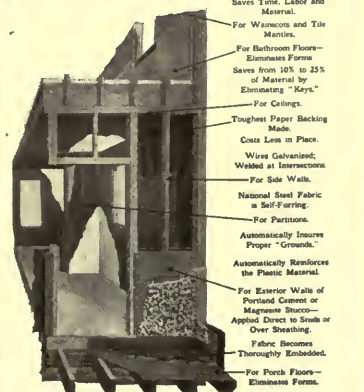
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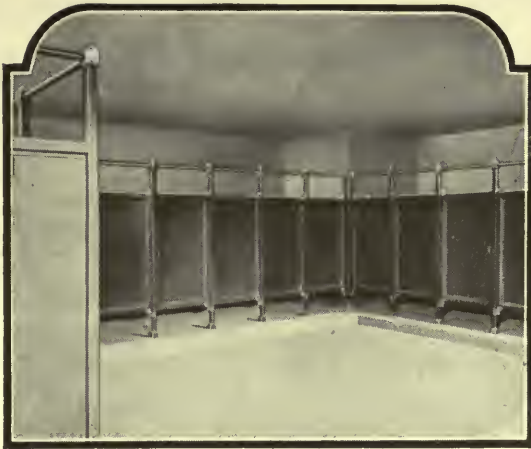
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RECENT PUBLICATIONS of ARCHITECTURAL INTEREST

Under this heading is listed a selection of (1) new catalogues, monographs and reports published by manufacturers, manufacturers' associations, technical societies, educational institutions and government departments, and (2) books on architecture and the allied arts. The manufacturers' publications may be secured by architects from the firms who issue them free of charge except where otherwise noted.

- BOILERS.** Bulletin Number 51—"Boiler Practice for Textile Mills." The Heine Boiler Company, St. Louis, Missouri. 8x10½ in. 32 pp. Illustrated.
- BOILERS, RADIATORS, ETC.** "A Complete Line"—Boilers, Radiators and Heating Specialties. The United States Radiator Corporation, Detroit, Michigan. 2¾x6½ in. 270 pp. Illustrated.
- CLEANING, VACUUM.** Spencer Central Cleaning System. The Spencer Turbine Company, Hartford, Connecticut. 8½x11 in. 32 pp. Illustrated.
- CLOTHES DRYERS, ETC.** Bulletins Number 21, 22 and 23. Chicago Dryer Company, 2210-2218 North Crawford Avenue, Chicago, Illinois. Illustrated Bulletins. 8x11 in.
- FANS.** Buckeye Steel Plate Fans of All Types. The Buckeye Blower Company, Columbus, Ohio. 6¾x9½ in. 9 plates. Illustrated.
- FIRE EQUIPMENT.** Fire Protection for Buildings—Booklet J. Wirt & Knox Manufacturing Company, Philadelphia, Pennsylvania. 7¼x10½ in. 40 pp. Illustrated.
- FLOORS.** "Modern Floors." Marine Decking and Supply Company, Philadelphia, Pennsylvania. 7¾x10¾ in. 23 pp. Illustrated.
- FLOORS, ETC.** The Book of Masterbuilt Floors, Prepared for Architects, etc. The Master Builders Company, Cleveland, Ohio. Illustrated Bulletins. 8x11 in.
- FLOORING.** Stedman Naturalized Flooring. Stedman Products Company, South Braintree, Massachusetts. 6 p. reprint from Sweet's Architectural Catalogue. Illustrated in actual color.
- FLOOR AND ROOF CONSTRUCTION.** "Republie Fireproof Construction for Buildings." Republic Fireproofing Company, Incorporated, 216 W. 32d Street, New York. 8¾x11 in. 28 pp. Illustrated.
- FURNITURE.** Danersk Furniture for Executive Offices. Erskine-Danforth Corporation, 2 W. 47th Street, New York. Illustrated Folder. 8½x11 in.
- FURNITURE.** Reproductions of Colonial Furniture. William Leavens & Company, Incorporated, 32 Canal Street, Boston, Massachusetts. 6x9¾. 12 pp. Illustrated.
- GAS MACHINES.** "The Freepoort—A Gas Machine With No Regrets." Freepoort Gas Machine Company, Freepoort, Illinois. 3¾x8½ in. 16 pp. Illustrated.
- HEATERS, ETC.** Catalogue bulletins of Warren, Webster & Company Products. Warren, Webster and Company, Camden, New Jersey. 8¼x11 in. Loose-leaf system. Illustrated.
- LIFTS, FUEL.** Sedgwick Fuel Lifts. Sedgwick Machine Works, Incorporated, New York. 4¼x8¾ in. 8 pp. Illustrated.
- LIMESTONE.** The Indiana Limestone Bank Book. Volume IV. Series B. Indiana Limestone Quarrymen's Association, Bedford, Indiana. 8¾x11¼ in. 64 pp. Illustrated.
- LINOLEUM.** Blabon Art Linoleums—Styles for 1923. The George W. Blabon Company, Philadelphia, Pennsylvania. 3½x8½ in. 120 pp. Illustrated in color.
- METAL LATH.** "Netmesh" Expanded Diamond Metal Lath in Copper and Zinc. Milwaukee Corrugating Company, 36th Avenue and Burnham Street, Milwaukee, Wisconsin. 6 p. Folder. Illustrated in actual color.
- PARTITIONS.** Wilson Rolling Partitions—"Solving the Floor Space Problem." The J. G. Wilson Corporation, 11 E. 36th Street, New York. Illustrated Folder. 3¼x6¼ in.
- PLASTER, GYPSUM.** "How to Get the Best Results From Gypsum Plaster." The United States Gypsum Company, 205 West Monroe Street, Chicago, Illinois. 3¾x6¾ in. 32 pp. Illustrated.
- PLUMBING WARE, ENAMELED.** Catalogue F. of Kohler Enameled Plumbing Ware. Kohler Company, Kohler, Wisconsin. 7¾x11 in. 216 pp. Bound in boards. Illustrated.
- PUMPS, CENTRIFUGAL.** Bulletin 249 of the Dayton-Dowd Company, Quincy, Illinois. 7½x10½ in. 32 pp. Illustrated.
- RANGES.** Bulletin 308 of Perfect Ranges. Richardson and Boynton Company, 200 Fifth Avenue, New York. 8x10½ in. 28 pp. Illustrated.
- REGULATORS.** "Sarco Temperature Control." Sarco Company, Incorporated, Woolworth Building, New York. 6x9 in. 8 pp. Illustrated.
- SASHES, STEEL.** Truscon Steel Sash. Truscon-Steel Company, Youngstown, Ohio. 8½x11 in. 80 pp. Illustrated.
- SHEATHING.** Clinton Welded Sheathing—a Combination of Clinton Electrically Welded Wire and Asphalt Felt—a Wire Reinforcement for Stucco or Plaster. Wickwire Spencer Steel Corporation, Worcester, Massachusetts. 6x9 in. 12 pp. Illustrated.
- STUCCO.** Portland Cement Stucco. Portland Cement Association: Offices in Principal Cities. 8½x11 in. 16 pp. Illustrated.
- TERRA COTTA.** Luca della Robbia, Volume V, Number VII of Series. Atlantic Terra Cotta Company, 350 Madison Avenue, New York City. 8½x11 in. 20 pp. Illustrated.
- WARDROBES.** Wilson Hygienic Wardrobe. The J. G. Wilson Corporation, 11 East 36th Street, New York. Illustrated Folder. 3¼x6 in.
- WATER HEATERS.** Catalog M. Wilks Water Heaters. Garbage Burners and Steel Tanks. S. Wilks Manufacturing Company, 3517-3539 Shields Avenue, Chicago, Illinois. 6x9 in. 28 pp. Illustrated.



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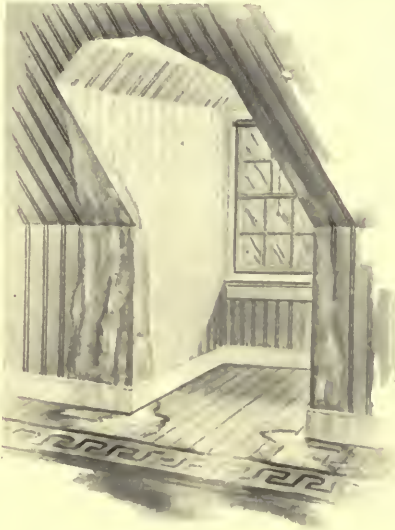
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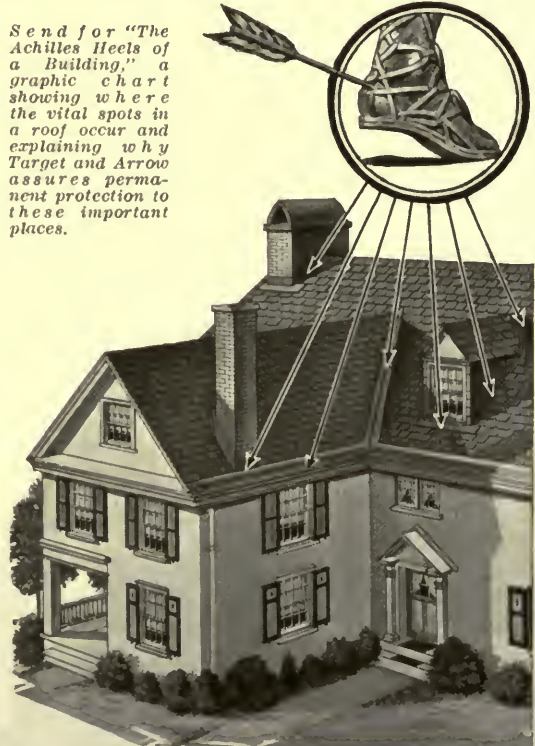
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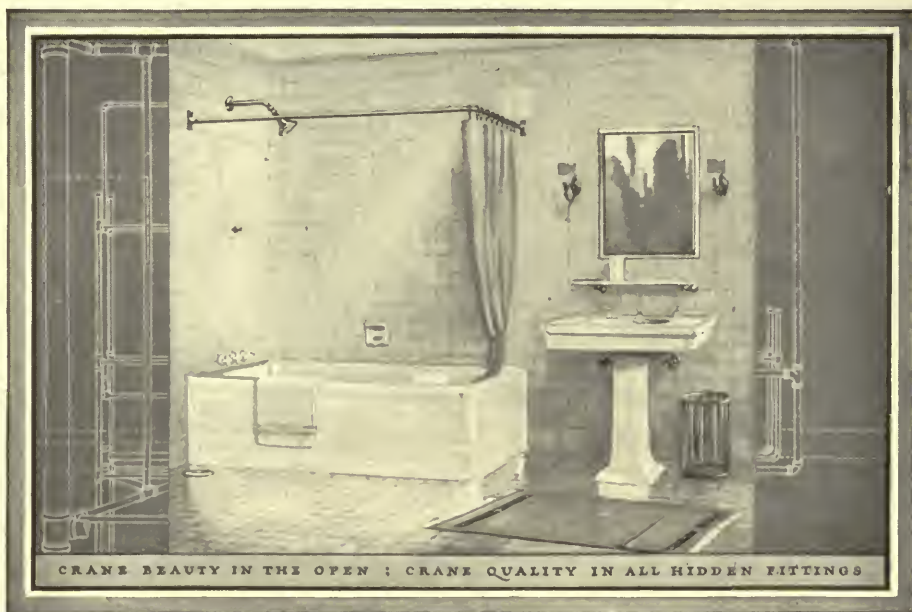
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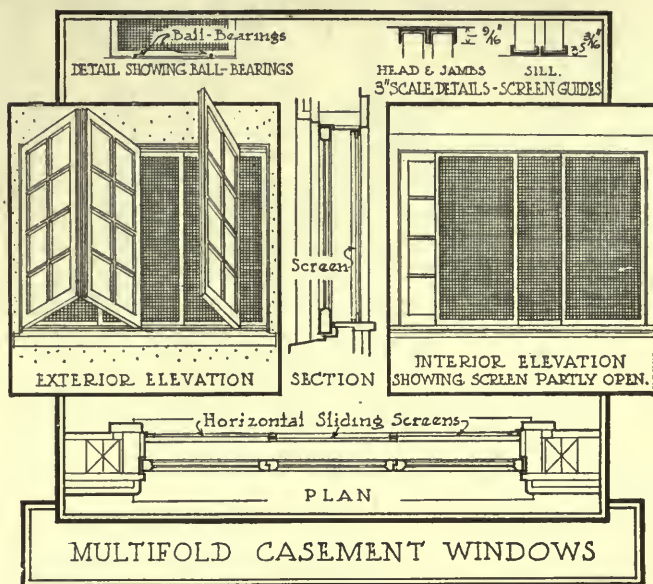
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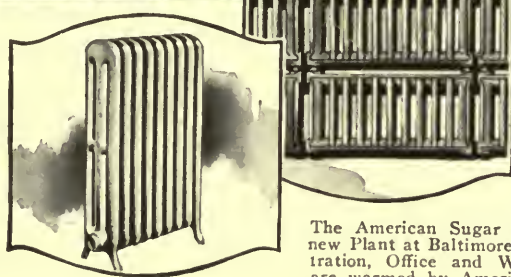
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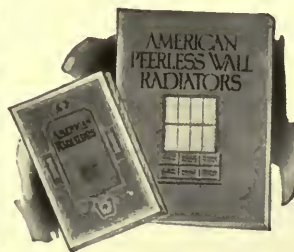
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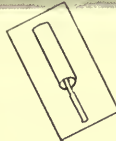
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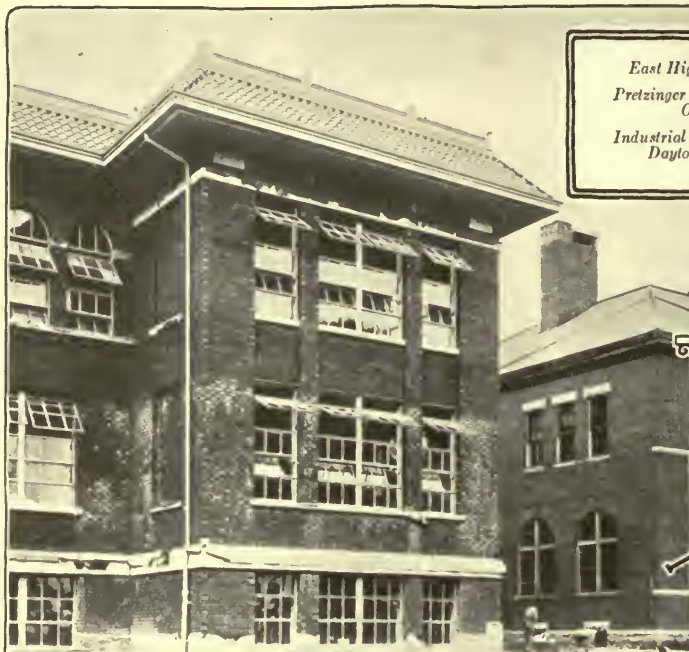


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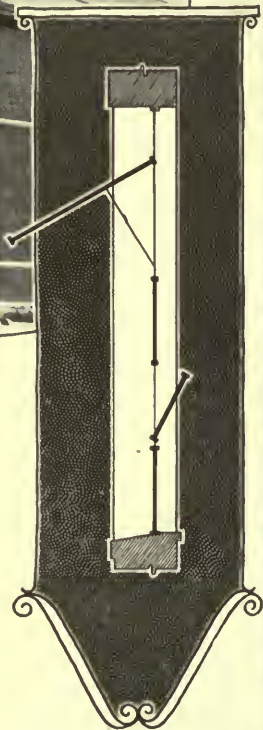
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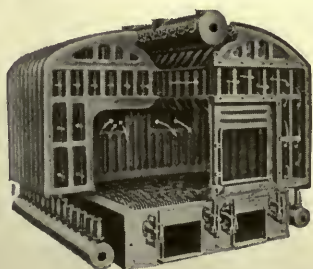


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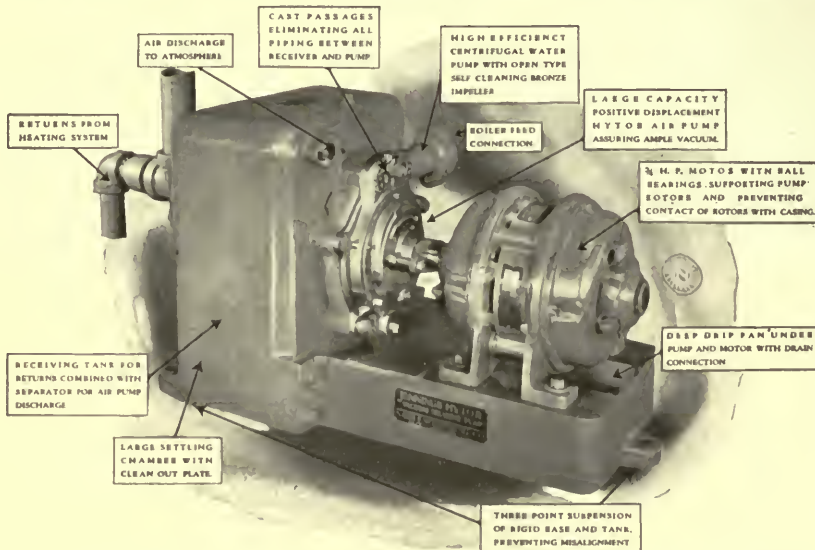
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The ARCHITECTURAL RECORD

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No. 6

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THE MICHIGAN AVENUE BRIDGE—IMPROVEMENT OF
MICHIGAN AVENUE AND PINE STREET, CHICAGO, ILLINOIS.
The Wrigley Building in the background.

THE ARCHITECTURAL RECORD

VOLUME LII



NUMBER 291

DECEMBER, 1922

The CHICAGO RIVER BRIDGES



By EDWARD H BENNETT
Consulting Architect to the Plan Commission

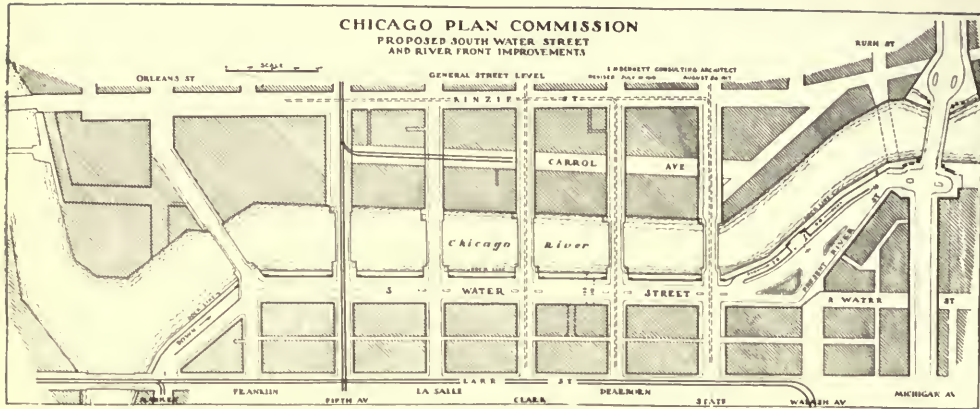
THE Chicago Plan Commission began its work in 1909. Its first enterprises were Twelfth Street, now Roosevelt Road, and Michigan Avenue, and in the case of each of these works the river crossing was involved. This led at once to a study of the bridges and, subsequently, to the supervision architecturally by the Plan Commission of all bridges proposed for execution.

Collaboration was necessary with the Department of Bridges. At first this was rather difficult to obtain due to one cause or another, but after a year or more of painstaking work, an adjustment of the ideas of the Department Engineers and the Commission's architect and staff was brought about. Complete confidence reigned in the common purpose of the two groups for good and a very fine basis of collaboration was established.

The Chicago River runs west from
four hundred fifty-nine

Lake Michigan about one-half mile and then forks abruptly north and south. The main channel east and west, about 250 feet wide, and the south branch, about 200 feet, separate the loop business section from the surrounding territory and have cramped its growth. Bridges must open for water borne traffic, and the delay in opening and shutting the bridges must be reduced to the minimum by rapid operation and freedom from obstructions in the river. The center piers of old bridges have long ago been ordered out by the Government.

The first studies for a bridge at Michigan Avenue were made as a single deck bridge, many years ago. Later, plans of Michigan Avenue on a two level basis brought about the design of the present structure. The chief feature of the Michigan Avenue improvement is this two level plan, separating its heavy flow



PLAN OF PROPOSED SOUTH WATER STREET AND RIVER FRONT IMPROVEMENTS IN CHICAGO, ILLINOIS.

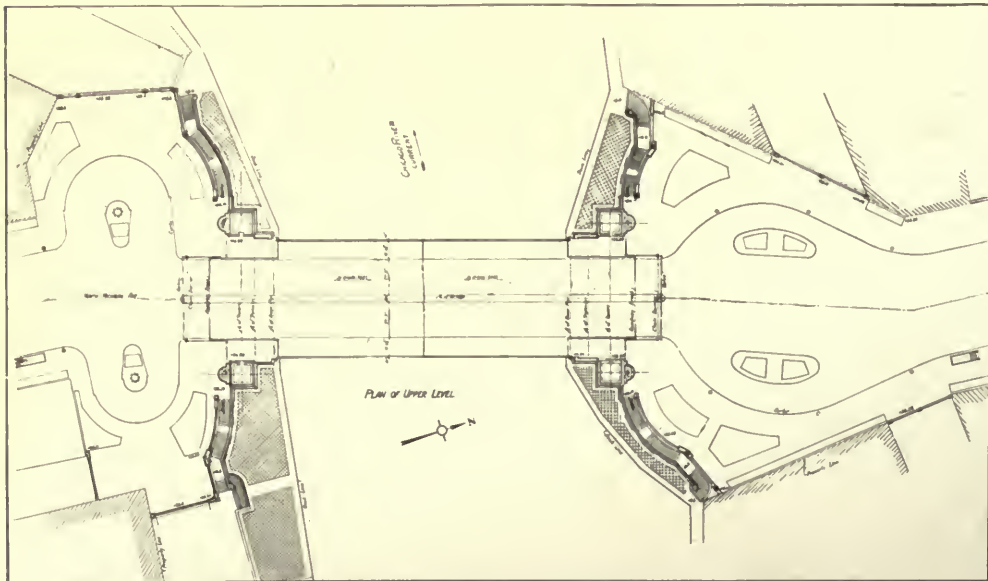
of light traffic from the cross currents of trucking and other light east and west traffic.

The bridge first designed in 1910 was proposed by the author as it is now built with the steel truss including the arched chord. This was submitted to well known bridge engineers and approved, and it was then worked out by the engineers of the Bridge Department and our staff in collaboration.

The architecture of the approaches,

abutments, lighting standards and houses then established has been from time to time revised and improved until the recent date of execution.

During this time a great number of bridges were designed and built. The type now known as the "hand-rail height" was evolved and progressively the bridge designs were improved. The steel work came in for its share of attention and, as a result of the collaboration mentioned, improvements in the arch



MICHIGAN AVENUE AND PINE STREET IMPROVEMENT, CHICAGO, ILLINOIS.

lines and the overhead truss lines were made.

An early good example was the Jackson Street Bridge. The Engineers of the Sanitary District collaborated with the author to the end that a clear deck type of bridge was built, having an unbroken arch below and suitably designed houses and lamp fixtures.

actual necessary structural depth of the truss, govern to a great extent the main lines of the structures.

Occasionally, as in the case of Jackson Street and in the two level Michigan Avenue Bridge, a clear deck is obtained. On the other hand, the curved overhead truss is sometimes and more generally necessary. Whenever possible this over-



MICHIGAN AVENUE DOUBLE DECK BRIDGE AND APPROACHES.

Looking from the Northeast to the Loop District.

Sculptural groups are provided for and are to be placed on the bases shown attached to the pylons.

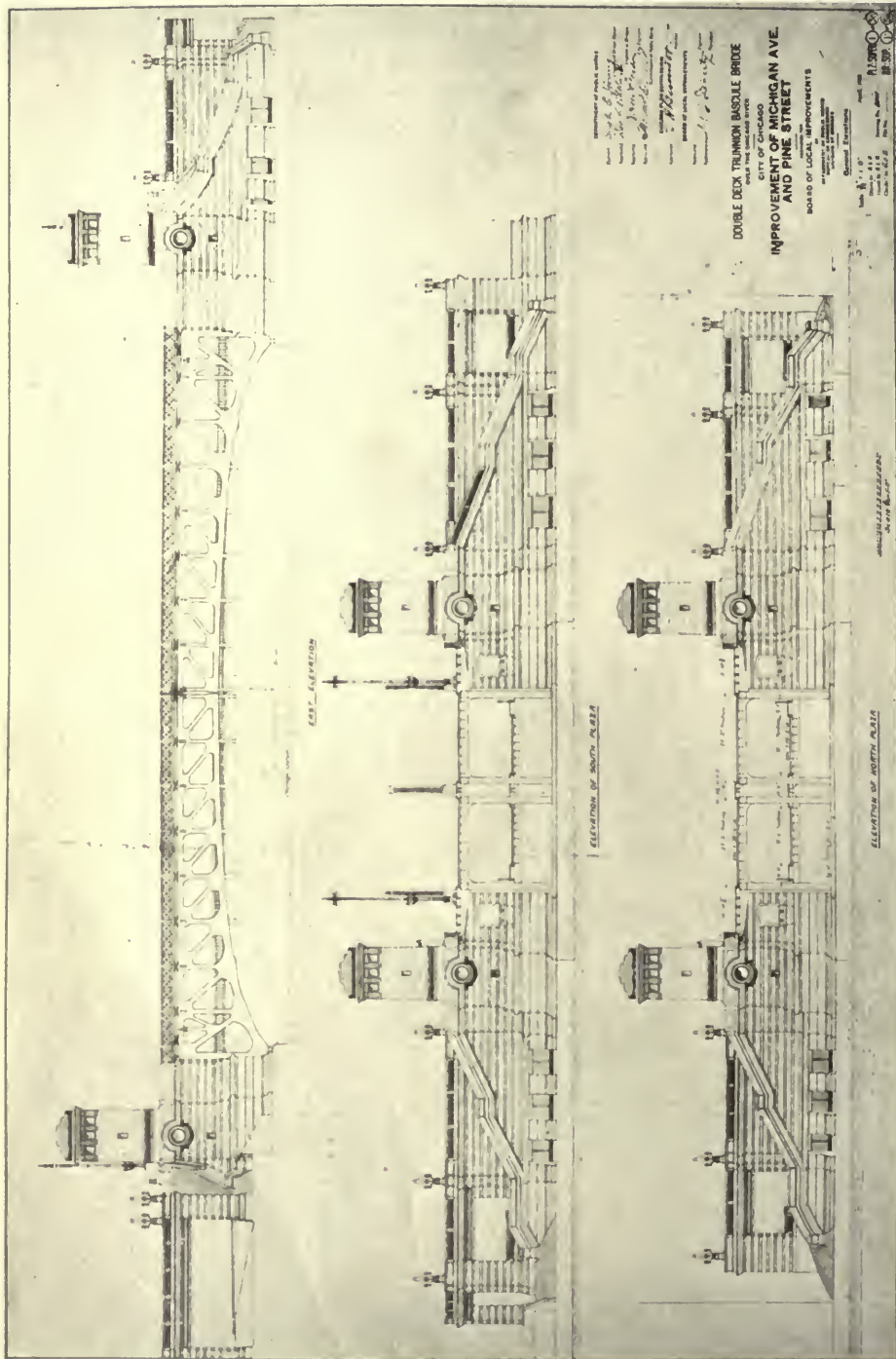
Several important practical considerations control the bridge designs in Chicago. The average ground level is 15 feet above the water level. The government requires a clearance of 16 feet below the bridge arches for 80 per cent. of the span; also ordinances require a clear channel when possible of 200 feet and also require that the bridges open. These requirements give rise to difficult problems in the approaches which, together with the clearance requirements and the
four hundred sixty-one

head truss is lowered to the "hand-rail height." This type is illustrated by the Madison Street Bridge; the curved overhead type by the Franklin, Orleans Street. The double deck bridges carrying the elevated lines have had their share of attention—the Lake Street and Wells Street Bridges are here shown.

In accordance with the Government requirement of removal of center piers a complete plan of bridge development was made by the Bridge Department some



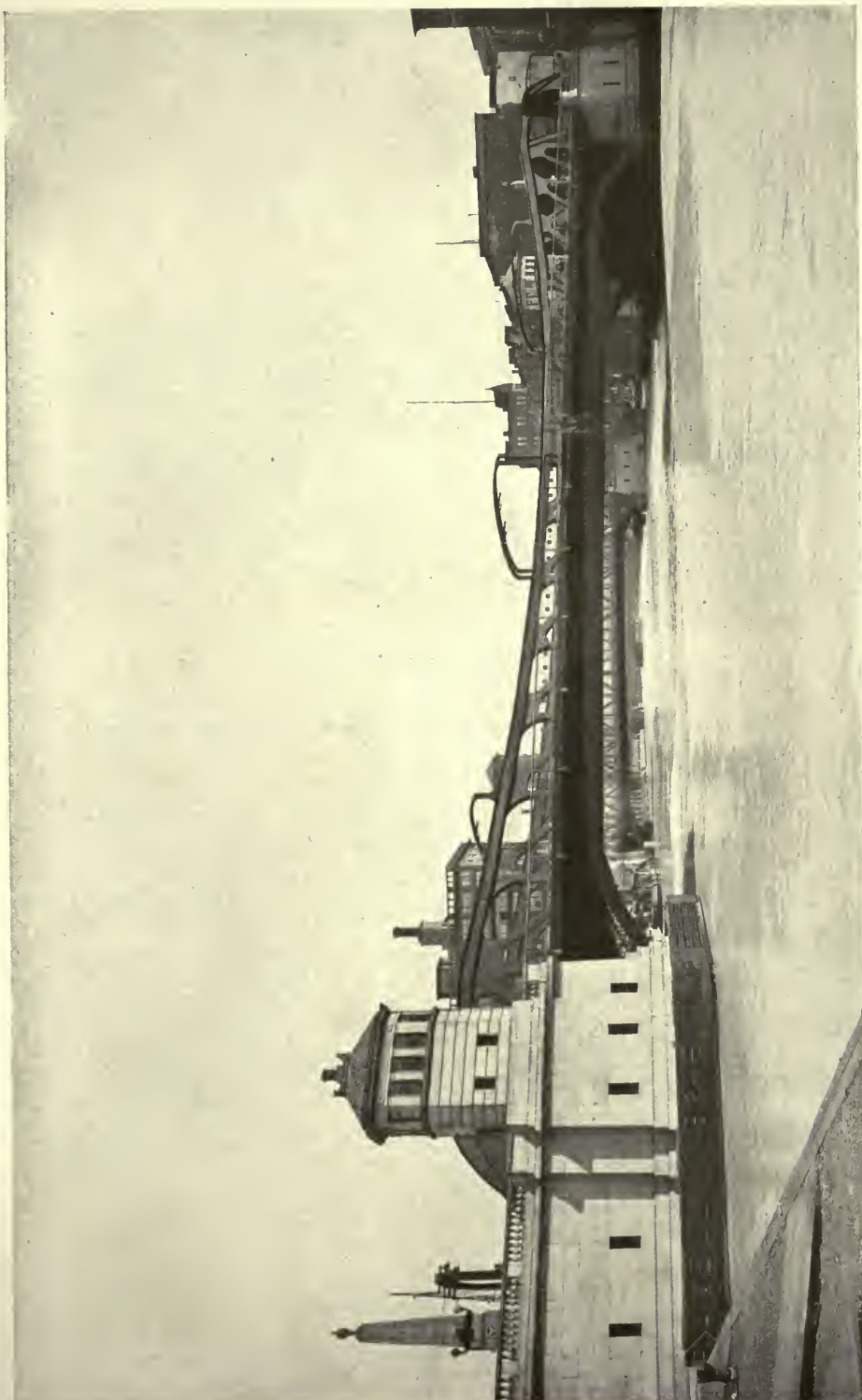
ONE OF THE ABUTMENTS FROM THE LOWER QUAY—
MICHIGAN AVENUE BRIDGE—IMPROVEMENT OF
MICHIGAN AVENUE AND PINE STREET, CHICAGO, ILL.



DOUBLE DECK TRUNNION BASCULE BRIDGE OVER
 THE CHICAGO RIVER—IMPROVEMENT OF MICHIGAN
 AVENUE AND PINE STREET, CHICAGO, ILLINOIS.



THE MICHIGAN AVENUE BRIDGE SHOWING THE TRUNNION BASCULE TYPE IN OPERATION—IMPROVEMENT OF MICHIGAN AVENUE, CHICAGO, ILLINOIS.



FRANKLIN STREET BRIDGE OVER THE CHICAGO
RIVER — SOUTH WATER STREET AND RIVER
FRONT IMPROVEMENTS, CHICAGO, ILLINOIS.



WELLS STREET DOUBLE DECK BRIDGE, CHICAGO, ILLINOIS.



LAKE STREET DOUBLE DECK BASCULE BRIDGE, CHICAGO, ILLINOIS.

Two examples of structures carrying the elevated road
on the upper and general traffic on the lower level.

few years ago, establishing practically uniform grades for the bridges on the main and south branches of the river. This fitted in well with the Plan Commission project of the development of South Water Street—a two level plan, the upper level corresponding to the bridge level. The design provides for the complete architectural treatment of the waterfront, the bridge abutments and

tricts have been designed by the Plan Commission; being of a fixed type they present much less difficult problems than those in the center of the city.

With the Michigan Avenue Bridge and approaches a more sumptuous treatment of the river was begun than was contemplated in earlier days. This has been carried out in the South Water Street design, and the embellishment of the en-



JACKSON BOULEVARD BRIDGE OVER THE CHICAGO RIVER, CHICAGO, ILL.

the operators' houses in connection with them.

A policy of fixed bridges is advocated by many in Chicago in the interest of traffic and general facilities for business. Such a policy would bring about some important changes in the design of the structure of the bridges and would lend itself to a far better looking general appearance of the River.

Numerous bridges in the outlying district

four hundred sixty-nine

front, it is hoped, will receive considerable impetus by the provision now made on the Michigan Avenue Bridge for sculptural groups on the four pylons. The subjects proposed are commemorative of various events in Chicago's history, ideally treated.

The Plan Commission has received in later years the support of the Planning Committee of the American Institute of Architects and the Art Commission.



A CORNER IN POITIERS.



CAFE DE LA LOIRE - AMBOISE

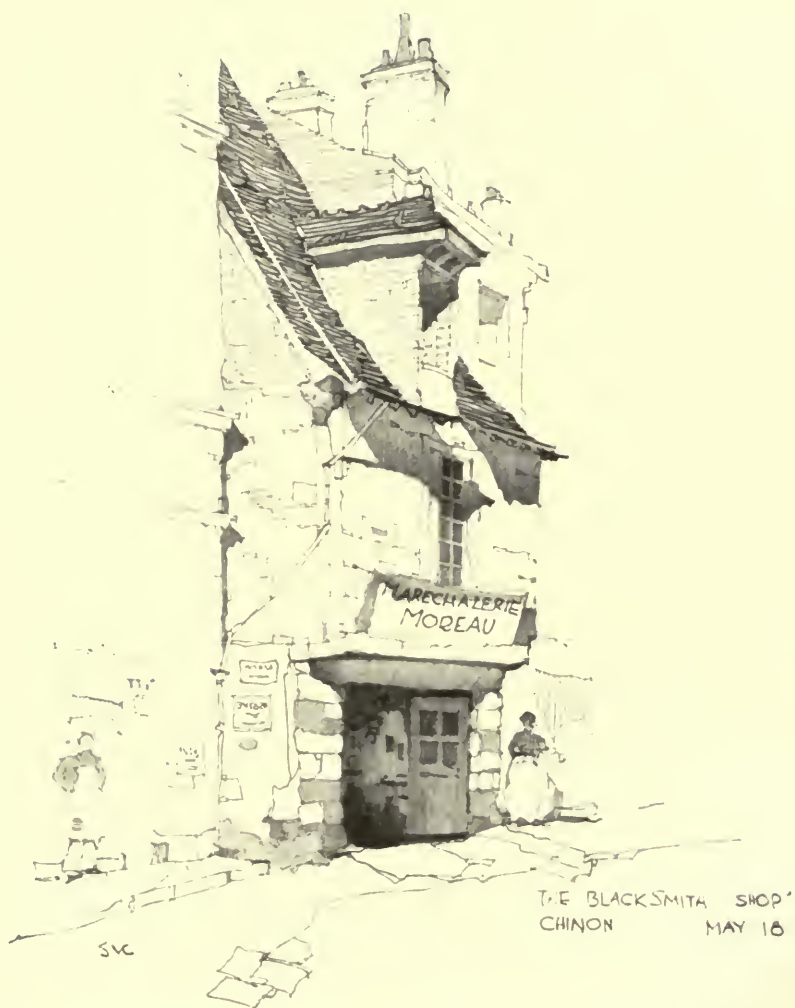
SKETCHES OF
A WANDERING
ARCHITECT IN
FRANCE

Pencil Drawings by
SAMUEL CHAMBERLAIN



CHINON'S FINEST HALF-
TIMBERED HOUSE.





THE BLACKSMITH
SHOP. CHINON.



OLD HOUSE
IN BEAULIEU.

four hundred seventy-five



OLD HALF TIMBERS
AT BEAULIEU.

four hundred seventy-six



OLD GATEWAY. RUE
VOLTAIRE, CHINON.



MONTRICHARD.





TOWER—CHRIST CHURCH PARISH HOUSE, HACKENSACK, N. J.
WESLEY SHERWOOD BESSELL, ARCHITECT.



ENTRANCE DETAIL—CHRIST CHURCH PARISH HOUSE, HACKENSACK, N. J.
WESLEY SHERWOOD BESSELL, ARCHITECT.

four hundred eighty-one



INTERIOR OF CHRIST CHURCH PARISH HOUSE,
HACKENSACK, N. J. WESLEY S. BESSELL, ARCHITECT.

four hundred eighty-two

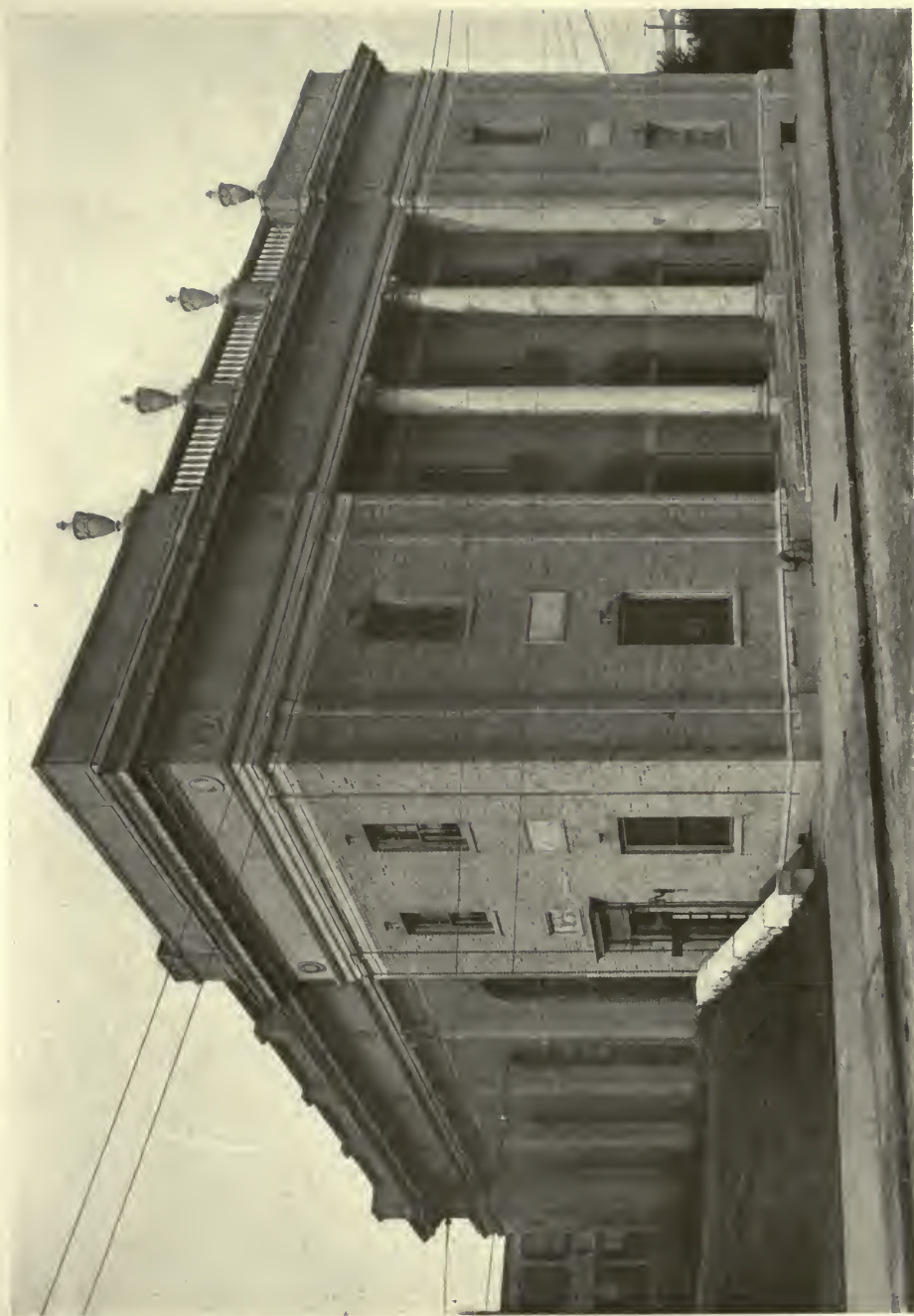


DETAIL OF FAÇADE—SOUTHWESTERN HIGH SCHOOL, DETROIT, MICHIGAN.
MALCOMSON, HIGGINBOTHAM & PALMER, ARCHITECTS.

four hundred eighty-three



SOUTHWESTERN HIGH SCHOOL, DETROIT, MICHIGAN.
MALCOMSON, HIGGINBOTHAM & PALMER, ARCHITECTS.



SECOND CHURCH OF CHRIST SCIENTIST, BAY RIDGE, NEW YORK CITY.
BERNHARDT E. MULLER. ARCHITECT.



SIDE DETAIL—SECOND CHURCH OF CHRIST
SCIENTIST, BAY RIDGE, NEW YORK CITY.
BERNHARDT E. MULLER, ARCHITECT.



DETAIL OF FAÇADE — SECOND CHURCH OF
CHRIST SCIENTIST, BAY RIDGE, NEW YORK CITY.
BERNHARDT E. MULLER, ARCHITECT.

four hundred eighty-seven



LIBRARY — "EVENING NEWS" BUILDING,
DETROIT, MICH. ALBERT KAHN, ARCHITECT.

four hundred eighty-eight



CORNER IN EDITORIAL ROOM—"EVENING NEWS" BUILDING,
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four hundred eighty-nine



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ENTRANCE-COUNTRY HOUSE OF E. F. HUTTON, ESQ.,
ROSLYN, LONG ISLAND. CHARLES M. HART, ARCHITECT.



WEST SIDE-COUNTRY HOUSE OF E. F. HUTTON, ESQ.,
ROSLYN, LONG ISLAND. CHARLES M. HART, ARCHITECT.



GUEST AND SERVICE WINGS—COUNTRY HOUSE OF E. F. HUTTON, ESQ.,
ROSLYN, LONG ISLAND. CHARLES M. HART, ARCHITECT.



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EDGAR MARTIN, ARCHITECT.



CHAMBER OF COMMERCE BUILDING, BROOKLYN, N. Y.
STARRETT & VAN VLECK, ARCHITECTS.

four hundred ninety-six

A NEW EMPHASIS IN SKYSCRAPER DESIGN

*Exemplified in the Recent
Work of Starrett & Van Vleck*

By

JOHN TAYLOR BOYD, JR

TO the world at large the American skyscraper is the one supreme feature of modern architecture. Whatever architects themselves may think, the citizens in the streets are thrilled by the lofty towers, rising into the dazzling sunlight above busy cities. In the eyes of the people the skyscrapers seem inspired creations of the twentieth century—fit symbols of the modern worship of the gigantic.

Nor is this admiration mere American exaggeration. Europeans, of the best type, when they visit our shores and behold the skyline of New York come into view, surpass our own people in praise of the tall buildings. They find no terms too extravagant to express their wonderment. "The supreme gift of the American architect to his art; a colossal shrine raised to the modern god Economics; true child of the American genius!" they say.

All this enthusiasm may seem strange to the American architect, but really he should pay it the deepest respect. For here, in this admiration, this deep feeling, this intense interest of the world, shared by all ranks and encouraged by the best—here is his finest opportunity. It is such an opportunity as comes to architecture only a few times in history. For when the world demands of the architect that he dramatize his age in one majestic symbol, it has given him all that he could ask. Through just such a situation the greatest achievements of architecture were produced—the pyramid, the temple, the Latin city, the cathedral.

When the world beckons, why should the architect hang back? Does he think that the world's enthusiasm is exaggerated? Does it seem to him that tall building architecture is not worthy of its high reputation? If the public interest is not wholly justified, that is not the fault

of the public, but rather of the architect himself for not having produced monuments more worthy of the popular zeal. In any case the world cannot be expected to draw fine distinctions as to the quality of architecture. That is the architect's task. Indeed one may doubt whether, in any age, the public has ever been able to perceive more than a vague ideal in art, and whether it would not have seized upon any glimmering, any hint of achievement which the artist had realized and, reading into it more than was there, have proclaimed the artist's work to be a success.

If, therefore, the skyscraper is not yet worthy of the public's admiration, it is the duty of the architect to make it so. He should view the perfecting of tall building architecture as the next great task confronting American architecture.

In accomplishing this task of making the skyscraper worthy of its name, a necessary step is to center the attention of architectural opinion on skyscraper design, as, for example, it has been centered on the country house, and to agree upon the best standards. That done, the next object should be to see how far these standards, or models, can be improved. If we study tall building architecture in this spirit, we shall, I think, discover that the recent buildings of Starrett & Van Vleck are most significant.

Whenever, in the course of architecture, a new kind of building is created, a long experimenting is necessary before the true type appears. This common happening in the history of architecture is too often overlooked in modern days when, sometimes, people think to create an art in a day. New types are never brought quickly to perfection, still less by any one man, unless we except Brunelleschi, the Shakespeare of architecture,



NO. 19 EAST FORTIETH STREET, NEW YORK CITY.
STARRETT & VAN VLECK, ARCHITECTS.

four hundred ninety-eight

who almost by himself ushered in the Renaissance style. Indeed, one of the most impressive facts in architectural history is the thousand years of effort required to develop the side elevation of the early Christian basilica into the perfection of the thirteenth century cathedral. What a long, hard road those old master-builders plodded to their goal, with how many a beautiful monument, full of promise, erected along the way!

When one thinks of their historic toil, thirty years of struggle with the skyscraper does not seem long; and, indeed, it is to the credit of American architects that they have done so well with so difficult a type.

The beginnings of tall building design go back to about 1890, when, in Chicago, the first steel skyscraper was erected. Economically, it met a need, and straight-way architects sought to give it appropriate form. Then, architecturally speaking, the first skyscrapers appeared.

These first attempts were chiefly dull copies of traditional buildings, in that the steel structures were made to resemble solid masonry construction. In designing them, the architects borrowed forms and motives, almost unchanged, from low horizontal buildings. It may be remarked that this early custom has not entirely disappeared today.

But soon architects came to see in the skyscraper a new problem—that of a building having a striking individuality of its own, requiring of the architect a new inspiration, a new conception of design, new motives, or else old motives used in a new way; an entirely new scale and a new sense of detail were needed. Though easy to perceive, this principle has proved so difficult to apply in design that only now does it seem on the point of being mastered.

It may be worth while to note, in more technical detail, how the vocabulary of skyscraper design has developed. In the first attempts to break the bonds of old formulas which had been developed for entirely different, horizontal types, too much was made of the comparison between the skyscraper and the classic column, with its triple division into base, shaft and capital. This conception, al-

four hundred ninety-nine

though excellent as a suggestion, as an idea, too soon became a rigid formula and was, and still is, an obstacle to direct imaginative design.

Its evil effects should be more clearly understood. The trouble with the column formula is that its effect is to plaster the upper stories of tall buildings with decorations which are too large in scale and which, because of the necessary flatness of the big wall, appear almost as thin as paper. The designer combines several stories into a monumental motive in the grand style, either of columns, pilasters, arches or a colossal Renaissance cornice, perhaps, five stories in height, a city block in length, and scarcely five inches in projection. This seems a wrong use of classic design. Such monumental motives were never meant to be so flat; they were developed in classic architecture in full solidity, with the same bold geometrical shape in the third dimension as in the other two. As used in skyscrapers they are paper architecture.

But this use of motives in the grand style on skyscrapers has a graver defect. That is the falsity of their scale. Right here is the failure of much tall building architecture. These crowning motives have a scale contrary to the true scale of the skyscraper, which is established by many tiers of low stories, with their small windows. The scale of the tall office building is thus almost domestic, rather than monumental, in character. In any case, the low stories and small windows make the skyscraper inherently a pattern of rather small elements. This pattern is distorted by forcing big geometrical shapes upon it.

The secret of skyscraper architecture would seem to lie in its small scale. This statement should surprise no one; scale is more important in modern architecture than it has ever been in the past, for now that buildings are more diversified than ever before differences in scale grow greater; every new modern type of building has its own peculiar scale, which the architect must know and express if his design is to be sound.

In an article on shop fronts (ARCHITECTURAL RECORD, June, 1921), I pointed out the peculiar scale of the city shop



THE BERKELEY BUILDING—WEST FORTY-
FOURTH STREET, NEW YORK CITY.
STARRETT & VAN VLECK, ARCHITECTS.

front, how New York architects had discovered it, how in particular McKim, Mead & White in the five-story shop building at 620 Fifth Avenue had created one of the finest masterpieces in all modern art. Similarly, the scale of tall buildings needs a true expression.

Examples of the clash of scales in skyscraper design are frequent. If big Renaissance motives, especially the orders, are used, the windows appear dwarfed until the huge walls are cliffs spotted with small holes, like the pigeon holes in an old dove-cote. As a result, the broad expanse of the wall surface is lost. It becomes disturbed and spotty.

It is this dwarfing of the window scale which explains the fact that tall buildings often do not look their height; this fact and the one to which I have alluded before, the practice of increasing the scale of the details towards the upper stories in order to allow them to be seen distinctly from the street. The Metropolitan Life Insurance Co.'s tower is a case in point. This device robs the structure of the splendid and varying effect characteristic of the finest historic towers, in which by refining the treatment towards the top the architects gave them an air of charm and suggestion, of what Ruskin called mystery in painting, which is supreme art and which makes them soar into the skies.

Not only does this custom of using monumental motives create false scale, but it seems to multiply the difficulties in design. It causes needless complication in the tiers of stories below the crowning motive, dividing them arbitrarily in the horizontal dimension into a center mass with flanking pavilions. This motive is borrowed from classic architecture, where it usually involves a receding of surfaces by at least several feet, in order to obtain the solidity of the third dimension in the big geometrical shapes and also to furnish the fine relief of deep shadows cast by the advanced planes on the center mass.

Dividing the big wall into long breaks or verticals also creates complications because the designer must tie the elaborate top part to the plain wall mass below and

also harmonize the intersection of vertical and horizontal elements.

The foregoing arguments may lead the reader to believe that Gothic is the style for skyscrapers. But I cannot see how the Gothic used in skyscrapers is more successful than Renaissance. To divide the vast wall into tall slits, or strips, or "buttresses," thereby stringing the windows in hanging rows of beads, seems to me to distort the true scale of these windows as much as the simpler Renaissance scheme, in which the big geometric crowning motive displays them as a pattern of dots. Gothic, likewise, results in extreme intricacy of verticals and horizontals and creates difficulties of design at the points of intersection of horizontals and verticals.

The proof of this last truth is the Woolworth Tower. The design of the Woolworth depends on extreme elaboration for its effect, which one must admit is attained with amazing technical skill; yet right here is the weakness of the Gothic type. All the various attempts which have been made by architects to simplify this elaboration, so the style may be fitted to simpler buildings, have not been very successful. In the simpler Gothic types the buildings are apt to be crude in shape and line and hard in detail. This is because the intersections of vertical with horizontal lines are faulty and abrupt.

This weakness of Gothic should be more generally realized. It is of no value to architecture to create a type of design which seems to imply elaboration. If it is sound, an architectural style should be free and flexible enough to produce beautiful architecture in the simplest and most severely plain buildings. The majority of buildings in any age must of necessity be rather simple. The old true Gothic was thus flexible, because it produced at one extreme the beautiful intricacy of Rheims and at the other, the beautiful simplicity of the yeoman's cottage. One may conclude, therefore, that the so-called Gothic style of skyscraper is a falsity, that it has no real vitality. It presents a parallel to the Romanesque of H. H. Richardson in the eighties and nineties, in which, through

the transcendent ability of one man, for a brief period, the dead came to life.

In fact, one should realize, that strictly speaking, the Woolworth and similar elaborate buildings are not office buildings at all. The huge cost of their ornament is charged to the advertising account of a prosperous company to which the rental income is not the sole measure of their success.

But what of that much discussed principle: the effect of the steel structure on the architecture of the skyscraper? What, indeed, of "structural logic"? Does not structural logic imply the Gothic type?

I have hitherto avoided discussion of structural logic, as something less important than design. Although a good principle in itself, when structural logic is pushed too far it intellectualizes architecture to a point where it ceases to be art. Architecture is a balance of many conflicting principles, of which structural logic is only one. It should therefore be kept in its proper place.

In spite of what purists say, there is no obligation in architecture to accent ugly structure. As to the uncouth character of the checker-board pattern of the steel, there can be no question, nor does any obligation rest on the architect to accent the vertical columns, particularly when this injures the scale of the windows. Scale, as I have tried to point out, has its truth as well as structure has. After all, scale emphasizes the character of a building as well as structure, and the two should not be allowed to conflict in design.

An architect goes wrong if he exaggerates the structure until it contradicts the building's intrinsic scale. In that case he has set one principle fighting another, and he has lost the balance of art.

Indeed, to come to the point, I believe that the real truth, both as concerns scale and structural logic, is that in essence the skyscraper is a vast, thin surface of masonry and glass, a screen stretched over a steel frame, thereby creating a building of many tiers of low stories, containing ranks of rather small windows, almost domestic in size—a hive where people work in offices. The architecture most

suited to it is a simple, frank treatment of the skin of masonry and glass, in small elements, preserving its almost domestic scale, with perhaps a suggestion of the steel work, if that suggestion is beautiful.

Such a direct method of design should satisfy the demands of structural logic. Even if we consult "nature," as seems to be the vogue in discussions of this kind, do we find the cat less beautiful than the crab because the cat's skeleton is less evident in its design? Without pursuing the point further, I believe that we may conclude that Gothic skyscrapers have merit only in so far as they are beautiful in form and true in scale, not because they are more logical.

When all this struggle to find the true skyscraper type is considered, difficulty with scale and style, the enormous effort to seize the true character of the building, it seems clear that tall building architecture is still in the developmental or experimental stage. The traditions of architecture have not yet been adapted to a point where the average designer works directly and freely on the average building. Skyscraper architecture is still too rigid, too much bound by formula and recipe, too heavily fettered often, by traditional motives of design and usually by the traditional details which are employed to carry out the motives. The imagination of the architect is imprisoned in rigid form and cannot soar.

To break the chains which bind the architect in designing skyscrapers: this is the task which Starrett & Van Vleck seem to have tackled, and they seem to have in large measure succeeded, particularly in three buildings, namely 8 West Fortieth Street, 19 East Fortieth Street, both in the Borough of Manhattan, New York City, and the Chamber of Commerce Building, near the waterfront of Brooklyn.

The more we study these buildings in their situation, the more impressive they appear. They are the essence of the tall office building, as they rise, beautiful masses of splendid outline, imaginative in pattern, exquisite in scale, beautiful in form and harmony of color, the colors light, clear and sparkling, and perfectly keyed to the sunlight. They are bold and



UPPER STORIES OF BUILDING AT 19 EAST
FORTIETH STREET, NEW YORK CITY.
STARRETT & VAN VLECK, ARCHITECTS.



NO 8 WEST FORTIETH STREET, NEW YORK CITY.
STARRETT & VAN VLECK, ARCHITECTS.



No. 8 WEST FORTIETH STREET, NEW YORK CITY.
Starrett and Van Vleck, Architects.

original architecture. The unity and consistency of design is remarkable, and in consequence the buildings grow more impressive each time one sees them.

If one studies their design, one finds that much of this unity is due to the splendid breadth of the wall surfaces. The architects have honestly emphasized the tiers of office floors, the underlying motive of the skyscraper. They have not feared to make the windows large, nor to satisfy completely the practical demand for plenty of light; nor have they

five hundred five

made much attempt to group the windows; in fact, in the building across the street from the Public Library, the windows are as simply treated as they well could be. Such a large use of glass is the opposite of that practice of dwarfing the windows to which I have alluded above. The success here is due to a fine combination of color and to the excellent scale of the small window panes. The color of the brick wall is a light tan, which so harmonizes with the color of the window opening that the wall sur-



NATIONAL ASSOCIATION BUILDING, WEST
FORTY-THIRD STREET, NEW YORK CITY.
STARRETT & VAN VLECK, ARCHITECTS.

faces and windows tend to merge in a broad pattern of tiny tones, not spotty, but commingled as in a tapestry. Such imaginative play of color lifts them above the mere architecture of form.

That the effect is due to the light colored brick and to the small window panes is proven in two other of their buildings. One is the Berkeley Building on Forty-fourth Street, the walls of which are dark red brick. There the glass stands out too much from the wall. The other is the National Association Building on Forty-third Street, in which the architects were forced to use sash without muntins, because at the time it was built the disturbed conditions in the glass trade made small panes difficult to obtain. In this building also, the wall has not the scale of the three in question.

This combining of the brick and glass of the skyscraper wall into one broad field of color is the foundation of the success of Starrett & Van Vleck's design. It proves that they have discovered the true skyscraper scale. But even this is not the whole of their achievement. Instead of nullifying the fine character of the wall by applying an alien scale of monumental details to the design, they have emphasized it by using details in small elements, of stone belt courses, cornices, and the like, which are in keeping with the scale of the wall and which harmonize with the light tone of the brick. Being comparatively small in size, these details fit in perfectly with the tapestry pattern of the big walls. And they have a still further merit. Although the decoration is concentrated more at the top than along the rest of the mass, there is at the top no overemphasis of large scale motives imitating the effect of a column capital or of a cornice, which effect makes too sharp and arbitrary a break in the window tiers. Also, since the forms are small in scale, and since they are detailed with fine sparkle of ornament and accent of mouldings, they have not that excessive projection which destroys the effect of lightness of the walls and which, through exaggeration of detail, makes the tower lose height. The fineness of the detail yields just that slight vagueness of form to the top neces-

sary to gain the effect of mystery which makes the architecture more imaginative, more poetic.

As to specific points of excellence of the three buildings, Starrett & Van Vleck have given each a distinct individuality within the type. No. 8 West Fortieth Street is splendidly robust and simple. The old idea of a crowning feature appears as only a suggestion, although it is sufficient; and the designers have not hesitated to run a slight horizontal belt course at every other story. As a detail, the corners are slightly rounded, giving a necessary alleviation to the outline. The one defect is the bluntness of the chimney on the east. The perfection of scale and the delicacy and fineness of the elements only serve to bring out the bold towerlike mass.

No. 19 East Fortieth Street has more richness, particularly of color, more sparkle and vivacity, with a splendid silhouette. One of its most interesting features is the expression, in low relief, of the verticals and horizontals, the "structural logic" of the steel skeleton. The effect actually is more noticeable than the photograph shows.

The Chamber of Commerce building is as fine as any of the three. It combines the bold outline of No. 8 West Fortieth Street with the color and life of No. 19 East Fortieth Street. It stands out splendidly against the blue sky, near the Brooklyn waterfront, above the docks, where it attracted my attention when first I saw it from the top of a Wall Street tower, nearly two miles away. The scale of that waterfront is vast, indeed, with docks, warehouses, bridges and ocean ships, and we could not put a building to a severer test than to ask it to hold its own in such surroundings. Yet it passes the test triumphantly and gives proof of that attribute which the world seeks in skyscrapers, the expression of majesty and power.

In brief, Starrett & Van Vleck have pictured the skyscraper wall as a harmonious pattern of color in slightly varying tones of brick, glass and stone, and light tile roof—even the soft orange colored awnings take their part in the effect—instead of a complicated arrange-



ENTRANCE CORRIDOR—BERKELEY BUILDING, NEW YORK CITY.
STARRETT & VAN VLECK,
ARCHITECTS.

ment of form in exaggerated verticals and horizontals, creating a false system of shadows on a thin screenlike wall.

Is it necessary to point out that Starrett & Van Vleck have followed tradition in the true way, not thinking of it as a rigid formula but as a flexible series of forms—alive—to be applied in a fresh spirit in a new type of architecture? And that, although some of these forms are of historic Gothic, Venetian, Italian and English origin, they have been so adapted to their new functions that they seem new?

Imaginative, even complex in parts, as this design is, it is in essence direct and simple. This makes it more useful as a style than a more complicated architecture would be. Thought and inspiration are more important in it than elaborate design or expensive materials, and hence it furnishes a style which can be applied to simpler buildings. The elaboration of the Gothic type, as I have pointed out, is a real weakness; to have value, a style should be flexible enough to produce simple, inexpensive architecture, as well as elaborate structures.

With such splendid models as these, one may regret that too few architects have not realized in skyscrapers the ideal which the world has set before them. Among all the hundreds of lofty buildings built in twenty years, barely a score have extraordinary merit, and few rival these three.

One hears the excuse: "Considerations of cost forbid design." But cost is not always in the way, for many an owner has been generous with his architect, and there are many poor designs which cost

more than Starrett & Van Vleck's. Starrett & Van Vleck are as "practical" as any, but they know well that, to be practical, it is not necessary to lower the banner of fine architecture. They have truly flung their banner into the sky.

It is a magnificent achievement, one which deserves to be better known. It brings the skyscraper in line with the progress made in other fields. For several years I have endeavored to trace the evolving standards of true American architecture. The first modern native beginnings were made by the Philadelphia architects in country houses, a movement which spread swiftly over the east and was echoed in the extraordinary achievements on the South Pacific coast, perhaps the finest of all at present. Then small town architecture, our architectural backbone, became more distinctive; next more characteristic work appeared in the cities, particularly New York, with its housing types, its smaller commercial types, such as shop fronts and the low four or five story commercial building. And now the skyscraper appears to be coming into its own.

True, the object is far from realized. But to the extent that it is not yet at hand, architecture should strive to bring it about. More than ever we need a distinctive American architecture, one which is coherent enough amid all its variety to provide that harmonious effect of whole neighborhoods and districts which alone creates a beautiful city.

This is the ideal which the world, in a vague way, demands. Starrett & Van Vleck have met it in their skyscrapers.



*Prospect des Hochfürstlichen Mansionschen Lust und Ziergartens
zu Dobrzsich im Königreich Böhmen*

THE ORIGINAL DESIGN OF THE GARDEN OF DOBŘÍŠ, FROM AN ETCHING AFTER THE PAINTING BY JAHN OF THE GARDENS UPON COMPLETION. THE ARCHITECTURAL SCREEN IN THE BACKGROUND IS BUT A FLAT WALL, WITH PAINTED DETAIL AND CUT-OUT SILHOUETTE. ("Dobrzisch," as appears in the title, is phonetic spelling of the name.)



VIEW OF MAIN AXIS, SHOWING OPENNESS OF PROSPECT WITHOUT DISSIPATION OF INTEREST.

THE GARDENS OF DOBŘÍŠ NEAR PRÁGUE, CZECHOSLOVAKIA



By George Burnap

Photographs by Bruner-Dvořák

THREE hours by train from Prague, or an hour by motor, one reaches Dobříš, the country seat of the Duke of Mannsfeld. The old castle, now used as a granary, occupies a hill-top site and, like many of the Bohemian Castles built in the time of Charles IV, presents a stilted and aloof aspect. The new residence, completed in 1765, gracing an open plateau within near view, is low and hospitable in its architecture. Its gardens of handsome amplexness mark the passage of time from ramparts to terraces. Their unique character arouses interest and urges analysis of the influences that wrought their building.

The architect of neither the buildings nor gardens is known. The only record of the original design is that found in a copper etching after the painting by Jahn, supposedly made immediately upon completion of the gardens. The French in-

fluence apparent in the design of the royal castle of Schönbrunn at Vienna, an influence not attributable to a French architect direct, is here less obvious, although there is a similarity between the two designs in the mounting of grades to a gloriotta silhouetted against the sky. Dobříš, or the gardens at least, would appear to be an outgrowth of the baroque period, of which Diensenhofer was the leader in Prague and Fischer in Vienna, and may be studied as characteristic of its time.

The garden design structurally follows the topographical substratum with an intermixture of slopes, banks and low retaining walls in major part softened by concealing hedges. There is none of the right-angle hewing of contour to exact levels, with the consequently high, oft-time overbearing retaining walls typical of Italian baroque gardens. Instead of

closely confined vistas, moreover, such as mark each axis of Italian garden design, there is open prospect and breadth suggestive of French concepts, yet without the level monotony of vanishing distances of *les grandes compositions*.

A feature of the gardens is the architectural screen surmounting the ridge at the upper confine of the garden proper. A climax to the garden design, it neither dominates the scene nor monopolizes the interest. Unlike the far-off gloriotta at Schönbrunn, it is in focus with the garden composition as a whole. In detail this screen is uniquely interesting in that its architecture, as delineated in the accompanying etching, was executed in paint, not substance—the illusion heightened by a cut-out silhouette. At present, mere traces of the painting remain and the wall along its entire length has been raised to the height of the central feature and topped with a balustrade.

In general plan the gardens of Dobříš affect frankness of design in an open treatment of rectangular area, symmetrically apportioned to various sorts of gardenesque spaces, the central axis extended and terminated in an ornamental *cul-de-sac*. There is, however, artful intricacy in the disposition of side aisles which divert the visitor constantly into leafy chambers and through various shady by-ways to the far point of the garden without revealing more than what each pathway holds. Skilfully the return route leads by a broad walk, avenued with century-old trees, through a succession of balustraded compartments—once enlivened by monkeys and parrots on perches—to an exit gateway of the garden. There is subtle mockery in the fact of recesses unexplored, in realization of garden compartments unseen. One perceives in retro-

spect the finesse of a garden which gratifies first inspection without revealing its full store of treasure, which withholds much of its beauty for later survey.

Beyond the garden lies a magnificent park, or rather a well-kept forest preserve. There are open knolls planted in a variety of trees brought from many countries. There are shaded glades enriched with rhododendrons acclimated after many years of patient care. The park is separated from agricultural fields by a surrounding wall, of stucco surface and tile coping, erected to keep the deer in rather than trespassers out—for goodwill is the only protection from intruders on an estate of such extent. The park embraces a small lake from which water is pumped, by water-wheel formerly and now by motor, to a reservoir which supplies the fountains and pools of the garden.

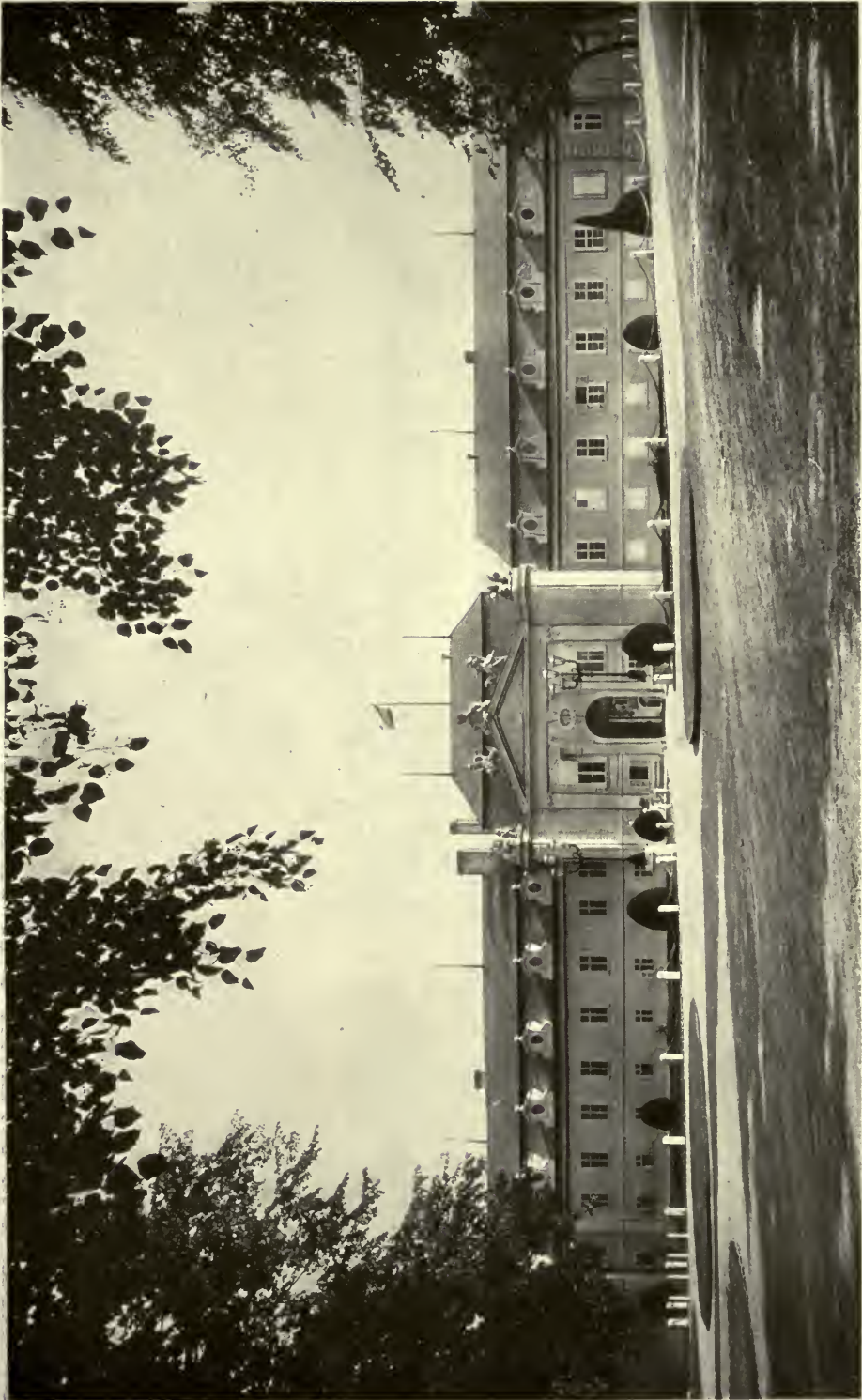
A conspicuous charm of the park lies in its original individualistic character. There is no introduction of English "naturalistic" effects, no piercing with French *clair-voies*, no artificial thickening with *bosque* undergrowth. It is native design. The same, once true, may no longer be said of the gardens. Fortunately not appearing in the illustrations of this article, the first garden level has been profanely converted by whim of the present owners into an extremely mediocre French scroll parterre. It is to be hoped that the innovation is but transitory and that the garden will not deteriorate into a residuum of styles. The merit of the garden design makes extremely desirable the restoration of the Dobříš garden to its original character and its preservation as Bohemian garden precedent.



THE OLD CASTLE OF DOBRIŠ, BUILT IN THE FIFTEENTH CENTURY, NOW A GRANARY (SEEN AT RIGHT), AND THE NEW RESIDENCE ERECTED THREE CENTURIES LATER.



VIEW TOWARD RESIDENCE FROM THE SOUTH, SHOWING
TREATMENT OF THE AREA ASSIGNED TO THE GARDEN SETTING.



PORTAL OF THE ENTRANCE FACADE LEADING TO CARRIAGE COURT WITHIN. THE WING TO THE RIGHT CONTAINS THE STABLES; THAT TO THE LEFT, THE SERVICE.



A MONUMENTAL GATEWAY GIVES APPROACH TO THE COURT OF HONOR FROM THE WEST. THE FLOWER-BED IN THE PICTURE CONCEALS A DOUBLE LEVEL FOUNTAIN WHICH BREAKS THROUGH THE LINE OF THE RETAINING WALL.



THE FIRST VIEW OF THE GARDENS THROUGH
A VESTIBULE PASSAGE FROM THE COURTYARD.



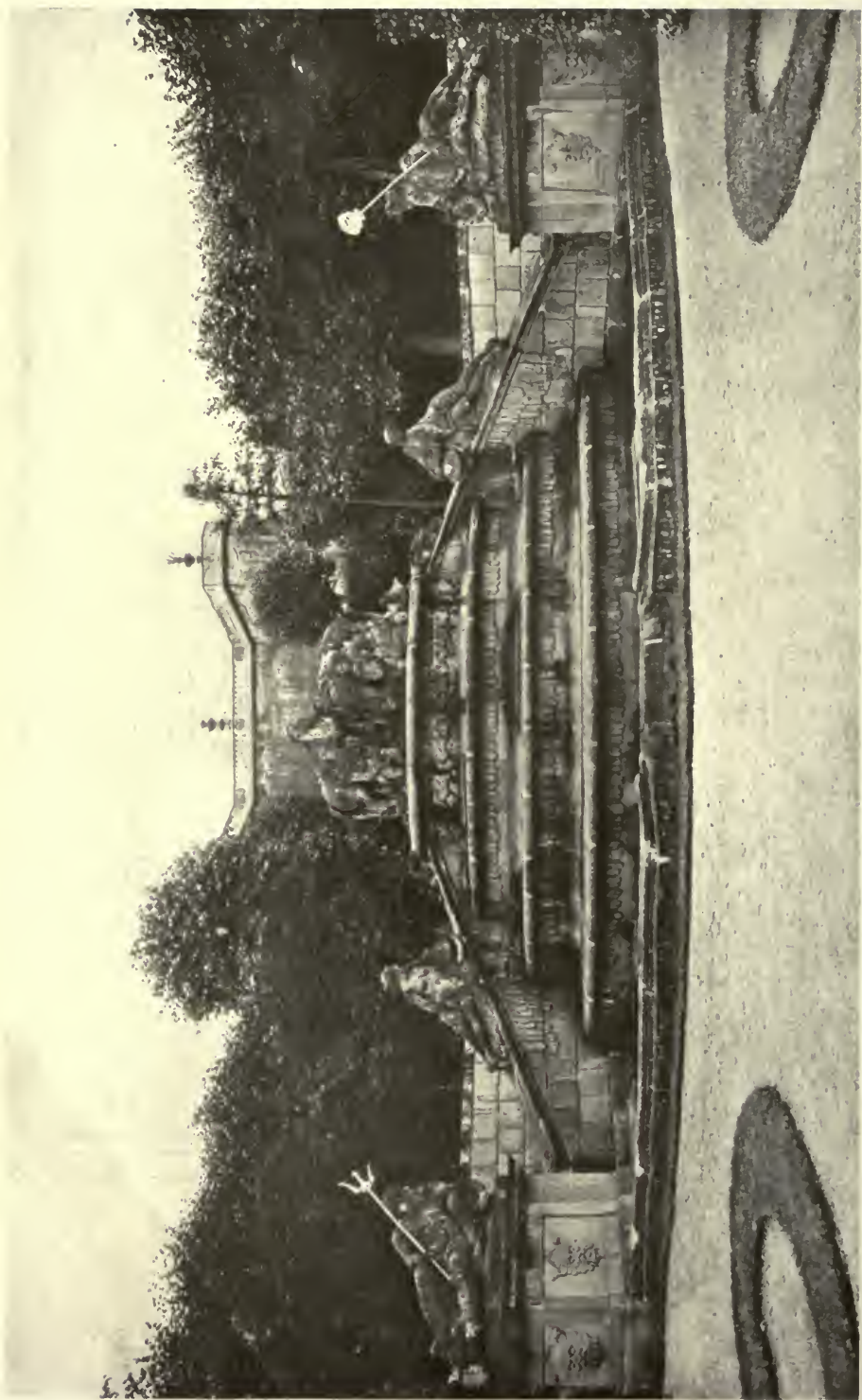
ARTFUL WALKS DIVERT ONE CONSTANTLY FROM THE MAIN AXIS.



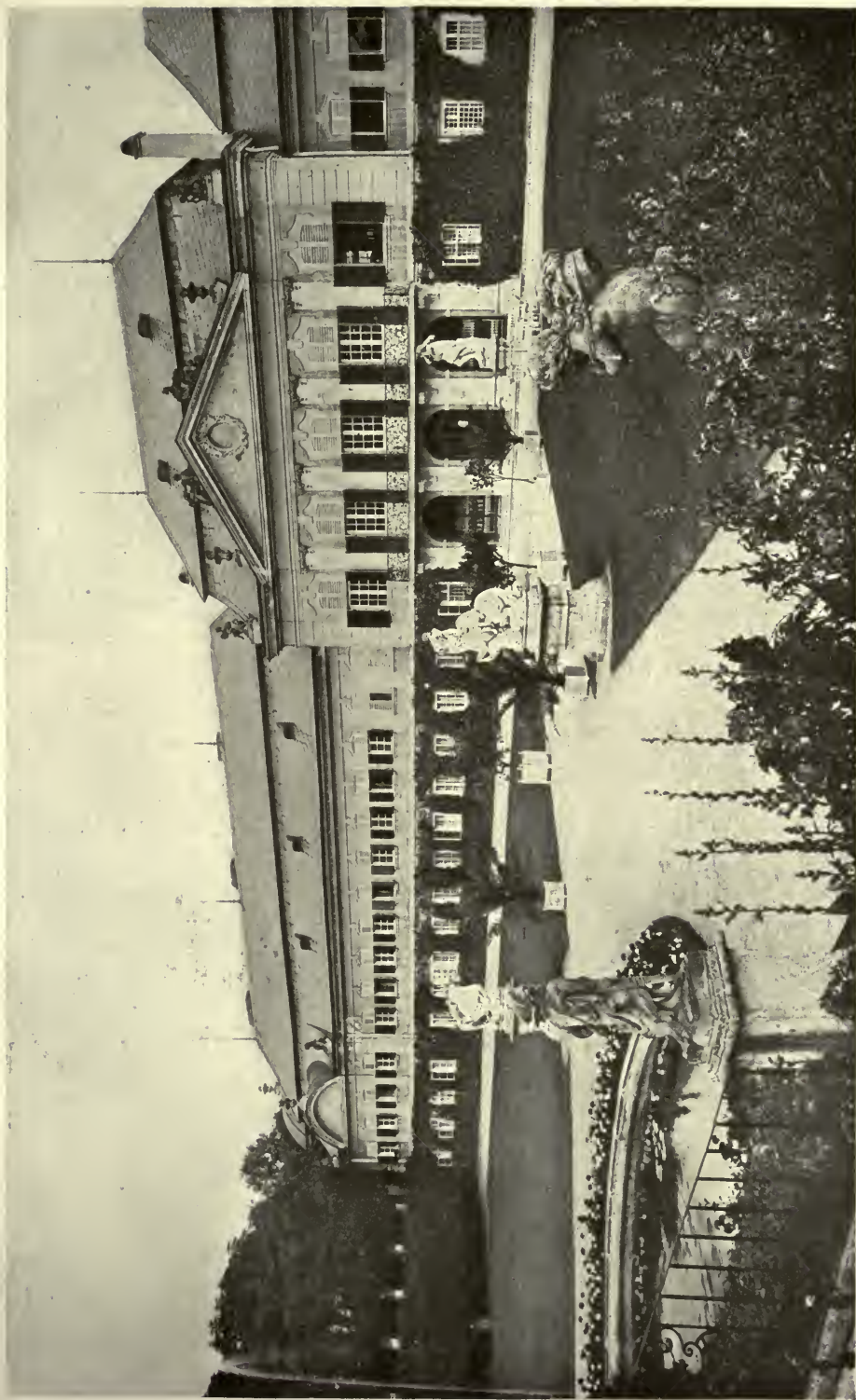
THE ARCHED ENTRANCE IN THE SCREEN WALL OPENS INTO A PALM HOUSE WHICH
CONNECTS ON EITHER SIDE WITH A CONSERVATORY AND AN AVIARY.



THERE ARE SEVERAL BEAUTIFUL EXAMPLES IN THIS GARDEN OF THE PRAGUE IRON WORK THAT ABOUNDS IN ALL BOHEMIAN CHURCHES AND PALACES OF THE BAROQUE PERIOD.



FOUNTAIN OF POSEIDON ON MAIN AXIS
OF THE GARDENS. STATUES BY PLATZER,
A CZECH SCULPTOR WHO DIED IN 1787.



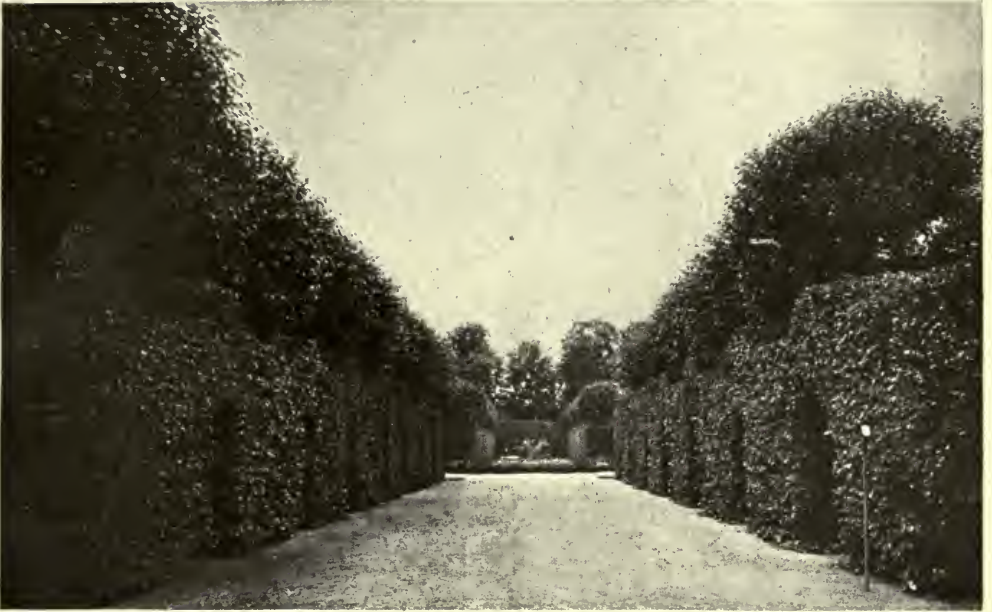
THE SOUTH FAÇADE OF THE RESIDENCE WHICH
GIVES VIEW OF THE GARDENS FROM THE
PRESENTATION AND LIVING ROOM WINDOWS.



THE ONLY VIEW INTO THE GARDEN FROM WITHOUT THE ESTATE.



ONE OF THE MINOR POOLS WHICH ORNAMENT THE CROSS AXIS OF THE GARDEN AREA
IMMEDIATELY BEFORE THE RESIDENCE.



A MAIN CROSS AXIS OF THE GARDEN SHOWING THE ARCADED BEECH HEDGES WHICH MASK THE TRUNKS OF THE GLOBE-HEADED LIME TREES THAT LINE MANY OF THE WALKS.



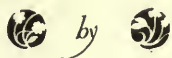
THIS AREA HAS RECENTLY BEEN ENTIRELY GIVEN OVER TO A MEDIOCRE FRENCH PARTERRE DESIGN WHICH INTERRUPTS THE MAIN AXIS AND PROFANES THE GARDEN AS A WHOLE.



LLOYD ELIOT WARREN
1868-1922

LLOYD ELIOT WARREN

"Who Nature and the Muses loved"



W. Francklyn Paris

WHEN Ralph Waldo Emerson, speaking to the graduating class of Dartmouth College, urged upon the young manhood of the day not to renounce learning and romantic expectations to get land and money, place and name, he uttered the truth that the "domineering temper of this sensual world creates the extreme need of priests of science."

This was in 1838, and the sage of Concord had less grounds for alarm at the materialism of the age than he would have today, but what he said then was not wafted away on the summer breeze and lost. He is gone, but his words remain. "The wintry blast of death kills not the buds of virtue. They spread beneath the beam of brighter suns through endless ages."

He warned his hearers that the vice of the times and of the country was an excessive pretension, and he urged them to seek the shade and find wisdom in neglect. "Be content with a little light, so it be your own," counseled the great American philosopher; "be neither chided nor flattered out of your position of perpetual inquiry. Neither dogmatize yourself, nor accept another's dogmatism and do not renounce your right to traverse the star-lit deserts of truth for the premature comforts of an acre, house and barn. Truth also has its roof, and bed, and board."

I was not familiar with this quotation until Lloyd Warren brought it to my attention. I was chiding him gently for his habit of self-effacement, and this was his justification and his defense. It paints the man as well as anything I could say in praise of his character, which was noble and sensitive and exquisite, and if there is any virtue in the saying

five hundred twenty-five

"as a man thinketh, so he is," then Lloyd Warren was as Emerson would have wanted him to be.

He was born in Paris in 1868, so that his sympathy with the French point of view and his intimate knowledge of the French character came to him by right of inheritance, so to speak. Although educated here, he returned to Paris upon his graduation from the School of Arts and the School of Mines of Columbia University and enrolled as a student of the École des Beaux Arts, where he remained six years. He always spoke of those six years as the happiest period in his life. The Latin Quarter of that day was no longer the Bohème of Murger, but the young men of the Rive Gauche were still "*abreuvés d'idéal*" and Lloyd Warren shared with them their contempt of the bourgeois and their belief that "*il n'y a de vraiment beau que ce qui ne sert absolument à rien*."

When he returned to this side he "went into business," but he was of a delicate nature and the miserable arithmetic of dollars and cents so offended his susceptibility that he gave it up in disgust.

"The best of men have ever loved repose:
They hate to mingle in the filthy fray,
Where the soul sours, and gradual rancour
grows,
Embittered more from peevish day to day."

Lloyd Warren was one of these, and rather than have his soul grow sour he gave up an easy career as a constructive architect and became a "priest of science."

He was convinced that the doctrines taught at the Beaux Arts were the only true religion, and he belonged to that little group of American students of the École who, sitting on the terrace of the Café Voltaire, on the Boul' Mich', back in 1890, had decided to form in New

York a Beaux Arts society, where the teachings of the institution in Rue Bonaparte might be brought within reach of such American students of architecture as could not go to the mountain.

Many are the alumni of the École des Beaux Arts who have given of their funds and of their time to the Beaux Arts Society of New York, but not one has given as much of both as did Lloyd Warren. The New York institution was the only child of this soft-spoken and mild-mannered bachelor and he nursed it and favored it and was as proud of it as the mother of the Gracchi who rejoiced and gloried in her sons. Each year, when the time came to make up the inevitable deficit, the list was being passed around for contributions to the relief fund, and, "lo, Lloyd Warren's name led all the rest."

The Society of Beaux Arts Architects and the Beaux Arts Institute of Design, which it maintains at 126 East Seventy-fifth Street, have lost in him the fairy godfather who could always be counted upon to come to the rescue when disaster threatened. It was he who paid off the mortgage on the building which the Society and the Institute occupy and again he who leaned over the shoulders of the students of the Institute and, in that kindly manner and low voice that stamped him as a courtly personage, corrected their errors or criticized their efforts.

In these criticisms never once did he yield to the temptation to indulge in sarcasm, never once did he move away from the work criticized without tempering the critique with some word of encouragement. He had borrowed the formula of Bonnat and generally greeted a drawing with the familiar "not bad" . . . not good, but not bad" of that French master whom he loved and by whom he was highly esteemed. As a result the young men of the Institute had a real affection for him, as well as a high regard for his judgment and authority. Many of them he assisted financially and others he placed as draughtsmen in his brother's office or in other ateliers where his recommendation had weight.

He had secured for the students of the Institute the privilege, enjoyed by no other school of architecture or design, for graduates to whom had been awarded the Institute's Prix de Paris, to enter the École des Beaux Arts without examination, and last year much of his time in Paris was spent in making arrangements for a summer school of architecture to be held at Fontainebleau.

He had an exquisite taste in all the finer arts, and it was a treat to hear him rail against Cubism, Dadaism, Pointillism "and all that rot." He unbosomed himself to but few, however. His was a reserved and squamish personality, a fastidious being who "scorned adulation to receive or give." When he conferred a grace he sought to make it seem a debt paid to merit.

We were both active during the war, as members of the *Fraternité des Artistes*, in coming to the assistance of the families of French painters and architects and to their widows and orphans. It was this association that permitted me to penetrate his reserve and to see behind the mask of imperturbability with which he veiled a highly sensitive nature. He was a little ashamed, or at least terribly embarrassed, whenever any one perceived to what depth he was stirred by his emotion. He loved the French and suffered agonies during the first weeks of the war, but always he had the conviction that eventually right would prevail over might. "If I did not believe that," he told me, "life would hold nothing for me."

In his family life he was exemplary. His devotion to his parents and to two sisters, who died when he was just entering manhood, was of a quality that is no longer encountered. The relationship between him and his brother, Whitney Warren, was comparable to the classic friendship between Orestes and Pylades. The two were inseparable, and the same taste in music and art furnished occasion for as fine a companionship in ideas as is possible to conceive.

Although of a retiring disposition, Lloyd Warren held membership in many clubs—the Knickerbocker, the Union, Century Association, Racquet and Tennis.

Tuxedo, Players, Automobile Club—but these castles of indolence saw less of him than his pupils of the Institute. He played a good game of tennis, played agreeably on the piano, enjoyed the play and the opera and “nothing human foreign was to him,” but first of all he was Emerson’s “priest of science,” or of art, whose joy was in teaching.

In the funeral oration pronounced over his remains in St. Thomas’ Church by the Rev. Dr. Mansfield, that distinguished divine spoke of the grace “that kindled in his heart deeds of friendliness and kindness, generous sacrifices and constant endeavor to serve his fellowmen in work and ways that have counted for good.” *De mortuis nil nisi bonum*, and many are those over whom similar ora-

tions have been said. What distinguishes Lloyd Warren from the rest is that in his instance the eulogy was deserved.

As outward signs of his merit, he held the diploma of the French Government for Architecture, the Honorary Degree of Master of Arts conferred upon him last year by Yale University and the cross of the Legion of Honor given to him by France in recognition of his work in connection with the *Fraternité des Artistes* during the war.

“The wintry blast of death kills not the buds of virtue.” The seed planted by Lloyd Warren will bring forth, if not a harvest of fruit, at least a beautiful flower. “Rosemary, that’s for remembrance.”



The BUILDING PROSPECT *for* 1923

By

*Thomas S. Holden, Statistician for
The F W Dodge Company*

IN making estimates and forecasts the statistician leaves the realm of tabulated facts and ventures into the field of prophecy, which has many pitfalls.

The estimates for 1921 and 1922 (shown in Table I) are based on a record of past performance. The F. W. Dodge Company's building statistics are very complete and accurate for the territory they cover, which includes twenty-seven States occupying the Northeastern third of the country. These States include about seventy-two per cent. of the country's total population, and, probably, a rather larger proportion of its construction activity. The construction work of the country as a whole is estimated on the assumption that the Dodge figures represent three-fourths of the nation's total. The figures for 1921 are based on the complete year's record, those of 1922 on the actual record of the first nine months of the year.

Thus the estimates of these two annual totals are substantially correct. The estimates for the various classes are, naturally, subject to a greater percentage of error than is the estimate of total construction. The Dodge Territory, including nearly all the industrial centers of major importance, obviously contains a considerably larger proportion of the country's total industrial construction than it does of the residential. This has been taken into account in the figures shown.

In estimating future performances—in particular, the figures for 1923—various methods are possible. A common method is to tabulate the number and estimated cost of construction jobs that are being planned. This information is usually obtained from the architects who report the plans in progress in their offices. However, no one knows better than the architects that the volume of construction work in the plan stage is always scaled down

when it comes to actual construction. The Dodge Company's records for a number of years previous to the war showed that usually the annual total of construction started was one-third less than the volume of construction projected. During the years 1919, 1920 and 1921, the projected work was scaled down one half. Unfavorable conditions as to cost levels, general business and availability of money at reasonable rates will scale down the most ambitious building program, even in the face of enormous construction needs. On the other hand, a year of favorable conditions will bring to completion an enormous volume of construction that was not definitely planned at the opening of the year.

In view of these well-established facts, it seems advisable to the writer, although there is available a record of unfinished contemplated work running into billions of dollars, to base his estimate for next year on past performances and the probable trend of business conditions that will affect construction rather than on a tabulation of plans in progress at the present time.

The year 1922 has made a record. In nine months there has been a larger volume of construction started (expressed in dollars) than in any previous entire year. The proportion of residential building has been unusually large. At the close of the war the need for residential building was enormous, and construction in this class was large in 1919. It fell to a low level in 1920, the year of peak prices and violent reaction. Residential construction improved considerably in 1921, being the predominant element in the somewhat restricted building program of that year. During that year of business depression, however, construction was maintained at a rate that was high in comparison with most other lines of business. In 1922, with cost

five hundred twenty-eight

TABLE I.

ESTIMATED ANNUAL CONSTRUCTION VOLUME IN CONTINENTAL U. S.

(Figures in Millions of Dollars)

Class	1921	1922
Business Buildings	437	630
Educational Buildings	314	400
Hospitals and Institutions.....	92	101
Industrial Plants	195	346
Military and Naval Buildings.....	8	4
Public Buildings	27	42
Public Works and Utilities.....	637	810
Religious and Memorial Buildings.....	82	108
Residential Buildings	1,210	1,710
Social and Recreational Projects.....	140	149
Total	3,142	4,300

Estimates based on statistics of the F. W. Dodge Company.

TABLE II.

Rough Estimate of Total Construction, 1923 (see text).....	\$3,750,000,000
Rough Estimate of 1923 Construction to be Built from Architect's Plans...	2,267,000,000

TABLE III.

ANALYSIS OF TOTAL CONSTRUCTION

NOTE—This table includes a tentative analysis for 1923. By applying the 1923 percentages to the estimated total, shown in Table II., a rough schedule of 1923 by classes may be made. Such a schedule should be looked upon as tentative and subject to modification if conditions develop differently from present indications as outlined in the text.

Class	1921	1922	1923
Business Buildings	13.9%	14.6%	18%
Educational Buildings	10.0	9.3	7
Hospitals and Institutions.....	2.9	2.3	2
Industrial Buildings	6.2	8.1	14
Military and Naval and Public Buildings.....	1.2	1.1	1
Public Works and Utilities.....	20.3	18.8	20
Religious and Memorial Buildings.....	2.6	2.5	2
Residential Buildings	38.5	39.8	31
Social and Recreational Projects.....	4.4	3.5	4
	100.0%	100.0%	100%

Estimates based on statistics of the F. W. Dodge Company.

TABLE IV.

CONSTRUCTION PLANNED BY ARCHITECTS

(See Analysis in THE ARCHITECTURAL RECORD for September, 1923)

Class	Percentage by Architects
Business Buildings	84.5
Educational Buildings	94.7
Hospitals and Institutions.....	92.2
Industrial Buildings	56.0
Military and Naval Buildings.....	67.7
Public Buildings	86.2
Public Works and Utilities.....	8.6
Religious and Memorial Buildings.....	92.6
Residential Buildings	66.1
Social and Recreational Buildings.....	88.5

levels somewhat stabilized, and with money for residential construction readily available, the long dammed up demand asserted itself, and residential work in unprecedented volume was undertaken. Something of a reaction in general construction activity has already set in. It is largely attributable to the normal seasonal lull in activity during the autumn months. Important contributing factors have been the car shortage, fuel shortage and consequent shortage and delay in deliveries of materials, rising prices and rising wages. The seasonal decline is welcome at the present time. It is the most favorable indication of a good volume of construction next year. In checking the expansion of construction now, it tends to prevent overcrowding of construction facilities and to curb the rise in prices and wages.

Construction of mercantile buildings has proceeded at a rate that has been fairly near normal in proportion to the total. Industrial construction reached a very low ebb in 1921. Progressing slowly, it has in 1922 proceeded at a rate about double that of 1921. With the general upward trend in business and industry, this class of construction will steadily increase; just how rapidly, depends upon factors which are extremely difficult to estimate.

With expansion of business and industry, the demand for money for general commercial and industrial purposes increases. The demand for materials and labor for the construction of commercial and industrial buildings also increases. At such a stage of the business cycle, residential construction and those classes which follow its trend rather closely tend to be restricted.

In 1922 there were four consecutive months, April, May, June and July, in which the volume of contract-letting was considerably in excess of the previous high records shown in the Dodge Company's statistics. Are these high records, due largely to an enormous volume of residential building, likely to be repeated or bettered next year?

At the present moment it does not seem likely that the 1922 record will be re-

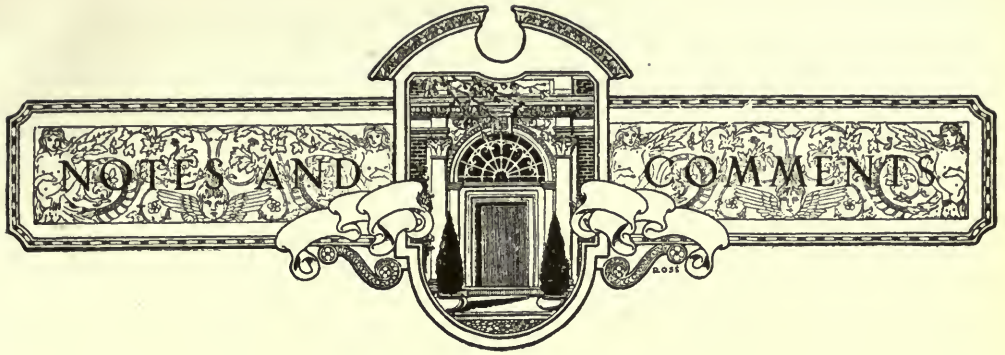
peated next year. Although there is still an enormous demand for residential construction, and although many localities which have not yet had any substantial building revival will probably do better in 1923, it would appear that residential construction will not be so large in volume next year as it has been this year. While mercantile and industrial construction will probably increase, it seems doubtful that they will be in sufficient volume to offset the probable decline of residential construction. The building revival seems destined to extend well into next year. But it appears now that next year's program will be different from this year's in character and somewhat less in total volume, although the volume will be well up to what may be termed normal.

In consequence of the above considerations, the estimated total for next year has been set at a figure that is approximately the mean between the 1921 and the 1922 totals, \$3,750,000,000.

The work that architects will plan (Table II) is estimated on the basis of an exhaustive analysis of their share in the construction business, which was published in the ARCHITECTURAL RECORD for September, 1922. If the estimate of the 1923 total be correct, then the figure for the total to be constructed from architects' plans is very close to what will actually occur.

These figures are submitted, not as predictions or prophecies, but merely as a tentative schedule of what, on the first day of November, 1922, it seems reasonable to anticipate next year.

The tentative analysis of 1923 construction (Table III) will enable anyone so inclined to make up a rough schedule of the 1923 program by classes. If such a table is made, and the percentages of Table IV applied to the figures obtained, a rough approximation to a program of work to be carried through by architects next year will be obtained. The data for estimating is thus submitted instead of an actual estimate by classes so that the user of the figures may realize the tentative character of his estimate and may modify it as conditions change.



**Etruscan Mural
Paintings Found
in Their Tombs.**

The indefiniteness which at present surrounds the origin and development of Etruscan art expression makes any addition to its bibliography very welcome, and it is with a feeling akin to excitement that one examines such a work. Archaeology is divided into three spheres of activity, the historical, the anthropological, and the aesthetic. Unfortunately, the major interest does not always take precedence in investigation, as is the case with Frederic Poulsen's "Etruscan Tomb Paintings." The main interest in these fascinating paintings is centered in their artistic history and the actuating impulses: the author states in his preface, "a detailed estimate of the artistic significance and properties is not yet possible"—a statement which is not supported by the illustrations of the paintings. Though the illustrations are reproductions of copies made from the paintings, which obviously fail to reveal the full content of the originals, the student of architectural and decorative expression will find much therein of the greatest interest, and many points that are fruitful in suggestion. The artist or architect making research in such works, naturally expects to find some attention given to technical detail essential to an intelligent comprehension of the artistic work described and analyzed; but how frequently does the archaeologist overlook the fact that there is a utilitarian channel for his records in the practice of those arts he chronicles; and, that the painter and architect will need specific information to enable them to produce after the manner of the works analyzed. As an example of this, we have only to study architectural writings of an archaeological and historical character, with the intent to discover

the manner of color treatment in styles that featured polychromy, to find this predominant factor completely ignored in the majority of standard and specialized works. This extremely interesting and conscientiously compiled work is a typical example of an archaeologist's investigation of an artistic subject which omits information essential to artists and architects; although the subject treated is painting, there is practically no information on the character of color harmony, technique, or the palette; information on color location occurring in the form of casual observation. To appreciate the decorative value of these paintings it is vital that some data be given on those points. The subject, in each case, is the theme developed, from the angles of social life, morals, athletics, etc.; but when we find considerable space devoted to discussing whether the men of that period took their wives or their mistresses to the symposium, and the subjects of color effect, character of composition and architectonic relation overlooked, we cannot but feel that this subject should have been handled by an archaeologist whose sympathies were artistic rather than sociological. As a matter of fact, the majority of recruits to that class of authorship lean to scientific and historical investigation, rather than to the artistic.

With keen interest now centered on all phases of archaic art expression, many interesting parallels and deductions will inevitably be made by students of architectural decoration who examine this book. The paintings of the greatest interest were produced during the sixth and fifth centuries B. C. The first excavation was made by Vittorio Massi, major-domo to the Bishop of Corneto. In 1827 Baron Stackelberg, a German archaeologist, and Thürmer, a Bavarian architect, undertook the work of measuring and copying the



tomb interiors then discovered. They made 225 drawings which have been preserved in the Archaeological Seminary of the University of Strasbourg. In the sixties of the last century the Queen of Sardinia obtained revenue by leasing tracts of land in the vicinity of Veii to Roman antique dealers, who rifled the tombs of their accessories. Dennis in his "Cities and Cemeteries of Etruria" recounts having been present when some of these dealers opened a tomb at Vulci, and finding nothing but pottery, smashed it all as an expression of their disappointment.

In his preface Poulsen summarizes the literature dealing with his subject, with an appraisal of the relative values of the various works and sketches; he tells of certain works in preparation which should contribute valuable information to the history of Etruscan art.

One of the most interesting phases of the tomb paintings is the evidence of Greek influence, and the recognition by the Etruscans of the supremacy of that race in the art expression of the day. In examining the Tomba del Barone, Körte discovered Greek

letters scratched on the wall, which proved to be the mural artist's calculation of the number of hours that he had spent on the work, in order that he might reckon his payment. The paintings of the Tomba del Bighe are by a Greek artist, who apparently executed subjects described by his patron; in certain details, however, he has introduced items of his own initiative, which, not according with the prescribed details, are most valuable from the point of view of art history.

The general character of the figure composition is essentially Greek, resembling the spacing of the figures found on the sculptured friezes and the vases of the contemporary periods in Greece. There is nevertheless a strong individual note in all these decorations, which differentiates them from work in other media, due to their intuitive appreciation of the inherent decorative capacity in each medium for effect. From the sparse technical information given in this work, it would appear that the same colors were employed for these paintings that were used for the decoration of the buildings and sculpture





during the Doric period. It is extremely interesting to find that the Greek principle of color alternation was so much a habit of thought, that in the mural decorations of the Tomba Campagna, the painter has colored the horses' legs in alternating colors. The actuating impulse in decoration is purely architectonic; and, as the painters missed the strong values of the moldings as a finish to their work, they created a corresponding value with a mass of superimposed bands of various colors.

As these tombs had only one doorway, they painted three others on the unpierced walls, with the obvious aim of balancing a structural feature, which alone, might disturb the symmetry of their painted decorations. The triangular panel above the frieze created by the angle of the ceiling was treated after the manner of a pediment decoration; the Tomba del Inscrizione is a fine example of a pediment design consisting of lions and antelopes.

We are rapidly recovering from the idea that decorative detail should be related or pertinent to the purpose that the building is intended to fulfill, and are naturally observant of the extent to which this view influenced the creative energy of the an-

cients. In examining the decorations of these tombs, to gauge the mental attitude of the Etruscan towards death, one is struck by the complete absence of gloom, and the subordination of any allusion to the regrettable incident in those rare instances in which it figures at all. An atmosphere of great conviviality permeates some scenes, while incidents indicative of the exuberance of life inspire others; love, sport, dancing and feasting are the favorite themes for tomb decorations; a funeral was evidently a very festive occasion, at which the guest to the rites, however, remotely connected, could, without effort, enter into the spirit of the proceedings with the sole qualification of a cheerful disposition. The concept of Beauty was interwoven with the Greek cult, and with that of other races influenced culturally by them; the main characteristics of their deities were human impulses, and the Elysian Fields a more consoling idea for the bereft than the unknown terrors awaiting the wrong-doer, and the extremely precarious valuation of the good-deed in the Final Appraisal.

LEON V. SOLON.



**Philadelphia's
Sectional City
Hall**

A somewhat novel idea in the construction of municipal buildings has been introduced in Philadelphia in the form of what is termed a sectional City Hall. This city has one of the most magnificent City Halls to be found in this country, located in the heart of the business section and covering an area a block long and a block wide. The growth of the city, however, has made this building difficult of access by reason of the fact that the residential is now far removed from the business section. To facilitate things for at least one of the sections of the city, known as Germantown, the new idea has been put into force.

The new building is to be an exceptionally attractive one, modeled somewhat after the White House in Washington. It will be of Georgian architecture, faced with white marble. Throughout, the structure will be fireproof. The columns of the front porch, Ionic in character, are 24 feet in height.

In designing the building, the City Architect, John P. B. Sinkler, developed a rather interesting feature in connection with the rotunda, which will be 33 feet in diameter and 37 feet in height. It is to contain a Memorial Chamber, wherein will be preserved and exhibited such mementos of the



MODEL FOR CITY HALL, GERMANTOWN,
PHILADELPHIA.

John P. B. Sinkler, Architect.

World War as are presented by the citizens of the section where the building will be located.

Surmounting the dome of the rotunda will be a tower, rising 132 feet from the ground. The tower is one of the picturesque features of the building. While it strongly suggests the tower in Washington, there is also molded into it some thought of the tower on Independence Hall, Philadelphia. Provision is made in the tower for a clock, and there will also hang there a bell of particular interest to the people of Germantown, who at one time had it in their Town Hall.

J. SELLERS CLARKE.

**The Architect—
Etcher and
the Renderer.**

When an architect enters the field of graphic art and takes to the etching needle something of interest to the architectural draughtsman is apt to occur, not necessarily through precise, unmistakable renditions of architectural structure, for that is not always the concomitant of such an excursion into etching. In fact, the architect's personality, apart from his professional attitude, is quite apt to assert itself. An Axel H. Haig will set down a cathedral stone for stone; a John Taylor Arms will loosen his technique as he woos the copperplate more earnestly; a Charles A. Platt or a J. André Smith will get quite away from buildings, and a William Walcott will weave dreams about them or sketch them with a debonair stroke that brings clever technique and a very personal attitude to the foreground rather the building.

William Walcott has been, having an exhibition of his etchings at the galleries of Knoedler

& Co. His plates are not only divided in the catalogue into "Roman Compositions" and "Architectural Subjects" (which labels may serve as well as any others), but the works themselves fall naturally into two groups, sharply differentiated by style, point of view, and size.

The "Roman Compositions," much larger than the others, are products of an imagination which rises to its highest point, probably, in "The Siege of Troy," with its rich spotting of figures, and "Babylon," in which the eye, led by a wide-embracing fancy, travels over an indefinite bird's-eye view of buildings, trailing off into a dim distance. One might fondle a phrase such as "opium dream of an artist," but it doesn't quite fit. There's phantasy here, but the substructure rests on earth, rests on the architectural draughtsman's table. It does that, even though our artist will suspend an electrolier in mid-air, supported only by a few thin, broken strands, or will regularly lose the feet of his figures, setting them on phantom legs. The figures, indeed, are factitious, obviously sketched in over the lines of the

architecture, as the renderer may put them in to show scale. Apparently the intention is to reproduce the half-truths seen when one looks at a more or less comprehensive scene. This very realism gives a feeling of unreality. The figures will presently fade away. There are elephants of papier-maché, presented with so neat a gesture that you will not notice the difference unless you look closely at them. Are not even some of the buildings a mirage? The phantasy itself becomes unreal—and a deeply felt phantasy will not, but will convince so that the unreal becomes real for the nonce. An exceedingly clever artificiality, an artistic exquisiteness a preciosity. Compare this with the imaginings of Marius Bauer, the Hollander—dreams of the Orient made palpable—and it seems that Walcot's art is a nervous, high-strung and ingenious speculation on how a dream might look, rather than an obsessing rendering of a haunting dream.

To the layman, at least, these large plates do not seem to bring very much in the way of an original note in the free rendition of architectural facts. In "Antony in Egypt," indeed, there is a weight of structure and a mystery in the deeply shaded doorway which has a symbolic significance. But, after all, one may desist from looking for something which the artist has not primarily intended to put there, except incidentally or to be gained by inference. It sometimes looks like a struggle between the architect's knowledge of structural and decorative form and the etcher's desire to indicate and not to detail.

Despite the size of the plates the needle-work is usually quite delicate, though not with the incisiveness of Whistler. Walcot plays delightfully with the needle in a way that reminds you of pen-and-ink effects. Indeed, here and there, in the swirl of a curved line, in the caressing touch of the etching-needle, there comes a slight, vague aroma of a whimsical cleverness, such as had Alfred Brennan, American master of pen-and-ink drawing.

His small plates deal, not with imaginings, but with facts seen through mood, through temperament, through soul—use what term you will. In them, too, there is reticence; no statements beyond clear suggestions of general effect of building or scene. Sometimes that reluctance to talk, so to speak, produces a terseness, a sketchiness, that apparently slights the building's right to be seen, as in "St. Mark's." Yet these bits of architecture, sketchily set down, may bring their hints in "rendering" to architects and their draughtsmen. One is told, indeed, that a number of Walcot's American fellow professionals have found delight particularly in these small plates.

five hundred thirty-five

Walcot is apparently at his happiest in long stretches of urban and suburban landscape fading into a misty distance, as in "The Tyne," "The Pool, London," "The Thames." Not figments of the imagination, not well-tempered reconstructions of ancient scenes, as are a number of the big plates, but every-day views, seen with an eye dreaming into that haze with which the atmosphere envelops things so that they pale out into an evanescent relation with us.

All this playfulness in technique, this dreaminess in contemplation, this flight into the imaginative, may well attract the architectural draughtsman not only by its contrast to his daily task, but also by the measure of suggestion and inspiration which it offers for that task. That impression is strengthened by the group of water-colors—New York City scenes, some of them—which formed part of this show. The speciality of "rendering" is not a narrow one.

FRANK WEITENKAMPF.

The Sesqui-Centennial Exhibition at Philadelphia in 1926.

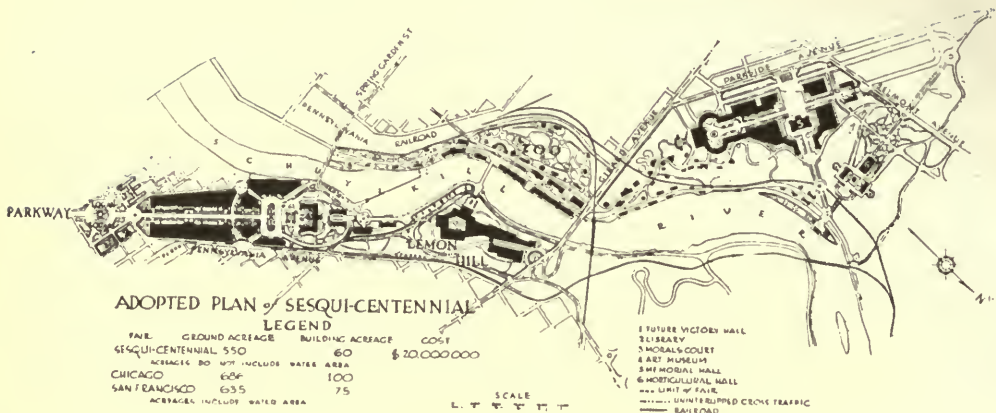
The Board of Directors of the Sesqui-Centennial Exhibition Association, at a recent meeting, adopted the Report of the Architectural and Engineering Commission, appointed to submit tentative plans

for an international fair to be built in the Fairmount Park-Parkway site at a cost of approximately twenty million dollars. The plan provides for an enclosed area of 550 acres, in which there will be sixty acres of main exhibition buildings to be provided by the Exhibition Association. The additional buildings will be erected by foreign and state governments and concessionaires.

The description of the site contained in the Report of the Commission reads in part:

"Beginning at Logan Square, the entrance to the Fair would be flanked on each side by very important permanent public buildings, erected at the expense of the City, representing a total cost of approximately \$15,000,000. The library is now under construction, and Victory Hall is provided for by legislation. The Municipal Court is still under debate, but the land has been acquired, and, if necessary, temporary construction could be put upon this land.

"The long axis from Logan Square to the Art Museum creates a formal avenue of great dignity, leading up to the old Fair Mount, which recalls the Acropolis at Athens and is a unique feature not to be found in any other American City.



"The visitor to the Fair, upon passing through and around the Museum, would immediately discover a new picture of a totally different character. The valley of the Schuykill from the Museum to Girard Avenue Bridge, with the hills on both sides, offers an unparalleled opportunity to create an informal architecture on both banks, culminating in a composition on Lemon Hill, from which all of the grounds could be viewed. The visitor, standing on Art Museum Hill, would have these two contrasting pictures created for him by the natural conditions of the site."

The Commission charged with the development of the plans has among its members the following architects: Paul P. Cret, F.A.I.A.; Milton B. Medary, Jr., F.A.I.A., and George Howe, F.A.I.A. Serving as an Advisory Group are: George I. Lovett, President, Philadelphia Chapter, American Institute of Architects; John P. B. Sinkler, City Architect; John H. Rankin, President, State Registration Board, and Charles Z. Klauder, F.A.I.A.

The jury of award in The Modern Hospital's \$1,000 prize competition for plans of a small general hospital consists of the following members:

Dr. S. S. Goldwater, superintendent of Mount Sinai Hospital, New York, hospital consultant, and former commissioner of health of the city of New York.

Asa S. Bacon, president of the American Hospital Association, and superintendent of Presbyterian Hospital, Chicago.

Clarence Howard Johnston, Minnesota state architect, former director of the American Institute of Architects, former president of the Minnesota chapter, and designer of the Charles T. Miller Hospital, St. Paul; St. Marys' Hospital, Rochester, Minn.; The

City and County Hospital, St. Paul; various hospitals at Minnesota state institutions and many college and private hospitals.

William B. Stratton, of Stratton and Snyder, architects of the Detroit General Hospital; Wayne County Juvenile Court and Detention Home, Detroit Municipal Tuberculosis Sanatorium and Children's Tuberculosis Hospital; the University of Michigan Hospital at Ann Arbor, Mich.; the Municipal Tuberculosis Hospital at Detroit; the Saginaw Womens' Hospital at Saginaw, Mich.; and numerous other hospitals of the Middle West.

Miss Adelaide M. Lewis, R.N., superintendent of the Kewanee Public Hospital at Kewanee, Ill.; graduate of the Hospital of the University of Pennsylvania at Philadelphia; postgraduate of the Presbyterian Hospital, Chicago; former superintendent of the Presbyterian Hospital, New Orleans.

This jury will meet in Chicago to consider the designs immediately following the formal closing of the contest on February 1st, 1923. Registrations for the competition will be received at the Chicago office of The Modern Hospital on or before December 15.

Gerald Lynton Kaufman, Architect, announces the removal of his office from 101 Park Avenue, New York City, and the establishment of new offices at 331 Madison Avenue, New York City.

Two prizes, one of \$500 and one of \$250, will be awarded to the successful contestants in a competition for covers for *The House Beautiful* magazine. The competition will close February 10, 1923. Other particulars of the conditions to be observed may be found in the November or December issue of *The House Beautiful*, or may be had upon application to the Competition Committee, 8 Arlington Street, Boston, Massachusetts.



Photograph taken after the two panels had been handled for several days.

We shall be glad to send a set of panels—one painted with Barreled Sunlight and the other with a high grade flat or egg-shell finish paint—for your own test purposes.

His friends made this test for him

It showed why he had to repaint interiors so often

HE was about to repaint again. On his desk were two wooden panels—one painted with flat finish white paint, the other with Barreled Sunlight.

His friends picked them up and inspected them.

At the end of several days their finger-marks had covered the flat finish paint with dirt. The panel painted with Barreled Sunlight remained clean white.

This test shows why walls and wood-work coated with flat or egg-shell finish paint require frequent repainting.

The surface of such paints is not smooth but actually rough and porous—full of tiny microscopic holes which collect dust and dirt. Sur-

faces coated with these paints can never be thoroughly cleaned. Water simply smudges much of the dirt still deeper into these pores.

Barreled Sunlight—the Rice Process White—is a pure white, lustrous oil paint. Its smooth, unbroken surface is highly resistant to all forms of dust and dirt. Even when soiled after years of service it can be washed clean like tile.

Made by our exclusive process, Barreled Sunlight is guaranteed to remain white longer than any gloss paint or enamel, domestic or foreign, applied under the same conditions.

Flows easily from the brush. Will not clog a spray as it contains no varnish. Sold in barrels and in cans. Where more than one coat is required, use Barreled Sunlight Undercoat.

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CLINTON

TRADE MARK REG. U.S. PAT. OFF.

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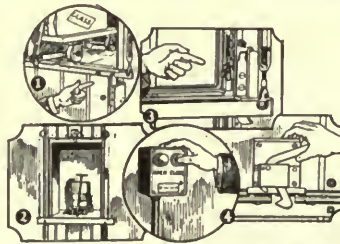
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architects
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about
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PEELE DOORS are the highest type of freight elevator doors made. Their counterbalanced construction insures long service and greater efficiency. The vertical operation permits full clearance for loading and unloading. The exclusive truckable feature insures safety of trucking into and out of elevator. They bear the label of the Underwriters Laboratories.

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The HOTEL AMBASSADOR, Los Angeles: Myron Hunt, Architect; N. O. Nelson, Mfg. Co., Jobber; Arthur Hess, Plumber

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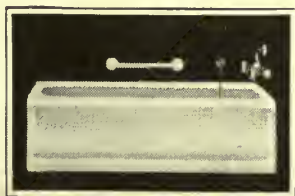
And The HOTEL AMBASSADOR

Sweeping vistas of spacious lawns and luxuriant gardens are afforded to every guest by the striking plan of the new *Hotel Ambassador*, Los Angeles. Naturally, no less care was expended by the architects to insure in every interior detail a perfection of appointments in keeping with this admirable scenic setting.

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The new Kohler Catalog F, just published, is a valuable handbook of the latest developments in fine plumbing ware. If you have not already received your copy, please write us on your business stationery.



Kohler "Viceroy" Built-in Bath
Recess Pattern

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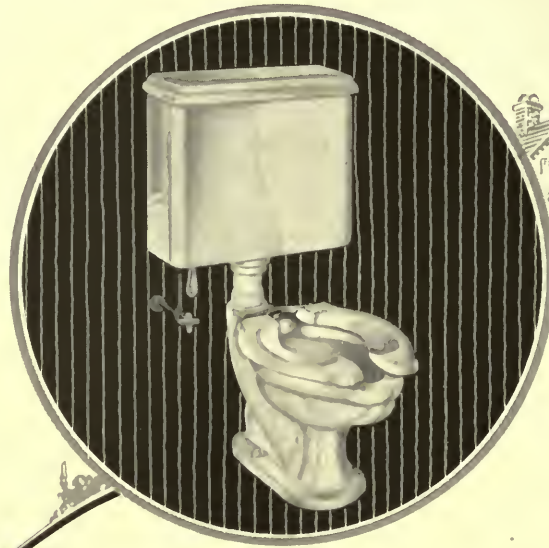
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SPECIFICATION:

ARISTON H-2900 White Vitreous China Silent Action Syphon Jet Closet, with extended Top Inlet, Floor Outlet and 2-inch Brass Spud. Extended Front Lip and Cut-back Sanitary Rim flushed all the way around. Water surface in bowl to be not less than 14x10-inch. Fitted with white Celluloid-covered Seat, no Cover, Open Front and Back, One-piece Vitreous China Flush Pipe Cover and White Vitreous China Bolt Caps. To be flushed with Madora H-3112 White Vitreous China Low-down Tank and Cover with Under-pull Lever and Maddock guaranteed fittings.

THOMAS MADDOCK'S SONS CO.
TRENTON, N. J.



Garrick Theatre (formerly Schiller Theatre) Building, Chicago, Illinois. Adler & Sullivan, Architects. Gray unglazed Terra Cotta throughout. Erected 1891. Photograph taken 1922.

A TEST of 31 YEARS

ERECTED in 1891 this building attests the enduring qualities of Terra Cotta under conditions of climatic exposure affording the severest trial. Proper detailing of Terra Cotta and its intelligent relation to other materials will always assure this result.

Note, also, how the size of the individual units of the Terra Cotta is in scale with the general proportions of the building.

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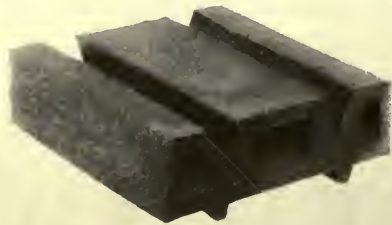
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"Taking Pen in Hand—"

I might as well admit it! I don't know how to write ads—but I do know the plumbing business. The fellow who used to write our ads didn't know the plumbing business, so he just strung words like "quality" and "service" together and tacked our name on the end.

That isn't my idea of advertising. To me, advertising is just *writing* to the people I can't meet personally.

I want our ads to tell our story the way I tell it myself.

Therefore—I'm going to write some myself.

When I can get a plumber in our shop I don't have much trouble selling him on the advantages of Clow plumbing—what he *sees* does that for me.

But there are a lot of plumbers I can't bring to the shop. Therefore, I'm going to bring the shop to them.

I'm going to try my hand at writing an illustrated serial story! A personally conducted trip through our shop—from receiving room to the shipping platform.

Instead of saying that "Clow plumbing saves money on installation costs," I'll show you a picture of a man with an air chipping hammer, squaring up a tub to architect's detail, so that it will fit the opening like a foot in an old shoe.

Instead of talking about the "superior quality" of our brass goods, I'll take you through our brass shop, and leave it to you to judge.

I think this series will be worth reading. But, as I said, I'm no hand with the pen, and I'll be eternally grateful for suggestions.

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They will give you the satisfaction they are giving Detroit.

There are Carey Asbestos and Asphalt built-up specifications for flat and irregular surfaces and Asfaltslate Shingles for exposed steep surfaces.

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But when these materials are united by an unusual service to architects under the same manufacturer's name—Johns-Manville—it is not strange that this name appears many times in one set of specifications. In specifications for a building such as

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that above, it might well precede each of the following:—

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When the ten-thousand-dollar "Bungalow Beautiful" was erected at

Atlantic City, careful costs were kept and it was ascertained that the actual cost of Genuine Figured Mahogany trim in living room, dining room and den was \$880. This was only \$80 more than the rooms would have cost trimmed in Poplar or \$20 more than Oak.

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MAHOGANY



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Engineering Tests Again Demonstrate Superiority of Southern Pine

In the series of tests just completed by the Testing Laboratories of the Department of Civil Engineering at Columbia University, Long Leaf Southern Pine again emerged the victor. The result of the tests is summed up in the following concise table:



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	Longleaf Pine	Shortleaf Pine	Loblolly Pine	Coast type Douglas Fir
Strength as beam or post.....	100.0	84.0	83.5	85.0
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Shearing // grain.....	100.0	83.0	84.0	85.0
Shock-resisting ability.....	100.0	90.0	91.0	77.0
Stiffness.....	100.0	82.0	85.5	100.0
Hardness.....	100.0	85.5	80.0	78.0
Weight (green).....	100.0	100.0	108.0	80.0
Weight (air dry).....	100.0	90.5	90.5	80.0

The holdings of Exchange Sawmills Sales Company are all in that belt in Louisiana where Longleaf Southern Pine grows to its best. Southern Pine, the wood of a thousand uses—is available in any shape or size, is known for its workability, and can be secured at a reasonable cost. We give particular attention to items used in home building.

LONG and SHORT LEAF SOUTHERN PINE

Yard and Shed Stock

Heavy Structural Material

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IF so, our Paint and Varnish Advisory Board may help you materially. Its services are gratis and a request for them places you under no obligation whatsoever. It is composed of men who know both the technical and practical sides of the paint business—men whose experience has taught them to study the problems laid before them, both from the standpoint of chemical composition and that of economical and lasting results.

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Paint and Varnish Factories

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Save 25% to 35%
in fuel costs

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WHICH?

Wisely we sleep beneath a woolen blanket in preference to a cotton quilt in the cold winter months because it retains the heat of the body and makes for comfort and sound sleep.

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is 7-16 in. thick,
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approx. 60 lbs.
per 100 square
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CELOTEX
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Use
PLATE
Glass

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IS there a true lover of artistic achievement in home design who doesn't love the enchanting illusion of the mirrored door? First the subterfuge of a puzzled architect, but now the artifice of artistic effect in planning interiors.

Seemingly something that it isn't, the mirrored door may add a witching air of mystery. It may hold the secret of balance essential to a restful room. It may compensate a window or a door or break the tiresome space of blank walls.

A mirror is something more than merely an article of furniture to be hung up. Considered in the building of house or apartment, and in the hands of a skillful artist, it may play an important part in the architectural scheme.

If you are building, have your architect specify plate glass mirrors in bedroom doors, closet doors, bathroom doors, medicine-cabinet doors, over the mantel and paneled French doors.

Ask your architect, too, about plate glass in the windows. A well-designed house, the pride of its owner and builder, deserves nothing less than plate glass in its windows. Its beautifully polished surfaces and crystal clearness make all the difference in the world in the external appearance of the house. Yet the difference in cost between plate glass and common sheet glass is surprisingly small. Get comparative figures from any glazing contractor or builder.

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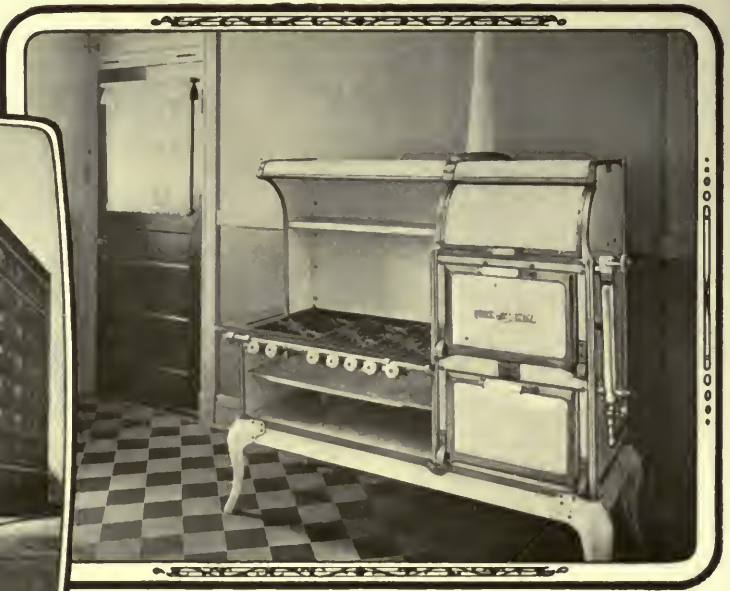
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*Plate Glass is best
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Hotel, Office-
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Exterior and Representative Kitchen of the Chase Apartments, St. Louis, Mo., P. J. Bradshaw, St. Louis, Mo., Architect. Kitchens throughout equipped with Quick Meal Gas Ranges with Lorain Oven Heat Regulators.



One easy turn of the Lorain Red Wheel gives the housewife a choice of 44 measured and controlled oven heats for any kind of oven cooking or baking.

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THE man that builds an apartment house Today depends upon the architect for expert advice regarding the installation of the most modern and practical equipment.

The reason is obvious. Builders and owners realize that if their buildings have the latest labor-saving equipment for women, suites are rented much more readily. In addition, the suites are more apt to retain their tenants with a greater degree of permanency.

Architects are now specifying gas ranges equipped with the celebrated Lorain Oven Heat Regulator for apartment houses because they know that these stoves make instant appeal to housewives. They save time and labor. They also save food and fuel.

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Only these six famous makes of gas stoves are equipped with the Lorain Oven Heat Regulator:



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DANGLER
QUICK MEAL
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LORAIN

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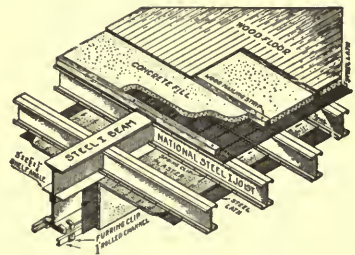


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Architects—Get This Valuable HOSPITAL BOOK

(Revised and Enlarged Edition Just Published)

On Ten Days' Approval

IF you are interested in Hospital Planning, here is the book you have been looking for. It contains the latest information regarding developments in American hospital planning and also illustrates many of the most successful modern institutions of Europe.

Originally published in 1918, this book promptly became the recognized authority on the subject of Hospital Planning and the first edition was sold out in a little over two years.

The revised edition has been entirely re-written and much new material has been added. Instead of 274 pages with 350 illustrations and floor plans, it consists of 380 pages with 480 illustrations and plans. It will be invaluable to everyone interested in Hospital Planning whether or not he possesses the first edition.

Revised Edition of

“The American Hospital of the Twentieth Century”

By EDWARD F. STEVENS, Architect

Member of American Institute of Architects. Member of Royal Architectural Institute of Canada. Member of American Hospital Association.

380 Pages, With 480 Illustrations and Floor Plans - - Price \$7.50 net

It discusses every ward and department of a modern hospital, including the Kitchen and Laundry, devotes special chapters to Heating, Ventilation and Plumbing—Details of Construction and Finish—Equipment—Landscape Architecture as Applied to Hospitals—and concludes with a chapter devoted to War Hospitals.

THE ARCHITECTURAL RECORD, 119 West 40th St., New York.

A.R. 12-22

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Send me on approval a copy of “The American Hospital of the Twentieth Century” (Revised Edition). I agree to remit \$7.50 for it or to return it postpaid within 10 days.

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Coupon
Today**



*The Waterbury City Hall, Waterbury, Conn.
Cass Gilbert, Architect
Exterior of Vermont Imperial Danby Marble and Brick*

“**M**UNICIPAL architecture in Europe,” says Robert Ellis Thompson, “reaches its highest point in the magnificent Town Halls.” America may well claim the same distinction for such splendid examples as the Waterbury City Hall, where VERMONT Imperial Danby MARBLE has been chosen to express the sense of civic stability and permanence that such a structure should convey. Imperial Danby is but one of the rich and beautiful varieties of Vermont Marble. May we send you the full details?

VERMONT MARBLE COMPANY

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ANCHOR POST CHAIN LINK FENCES produce in the owner a sense of pride rather than of apology.

Dignified, unobtrusive, eye-pleasing—like the well-chosen frame of a beautiful picture—they banish all old prejudices against wire fences, and substitute the realization of a permanent, efficient, harmonious barrier.

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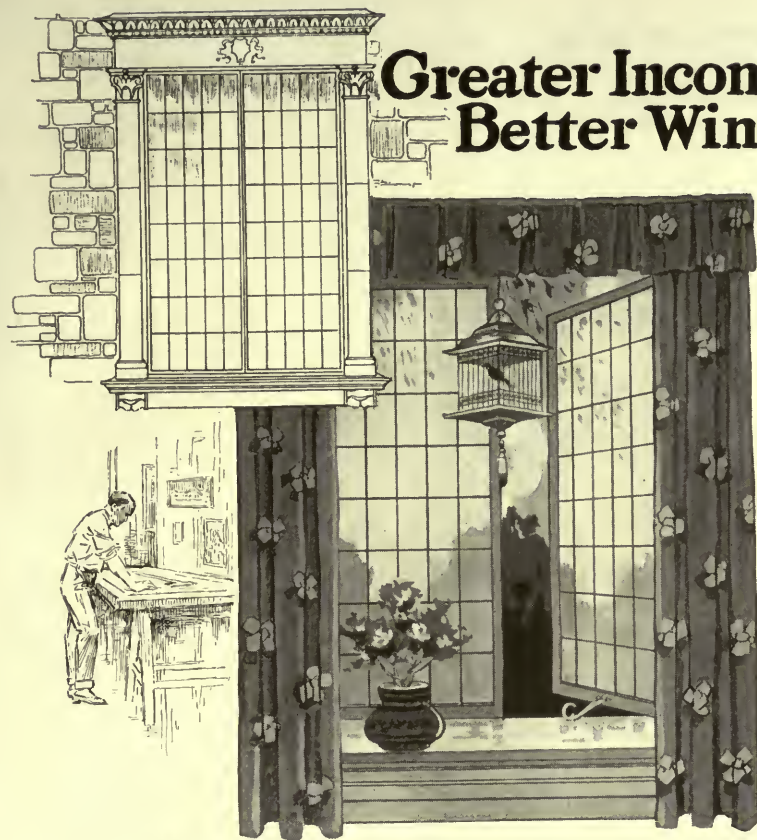
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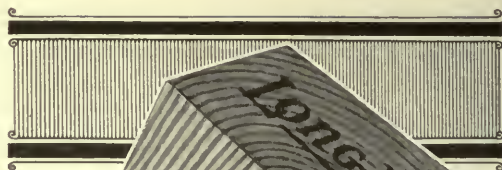
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The Long-Bell Lumber Company

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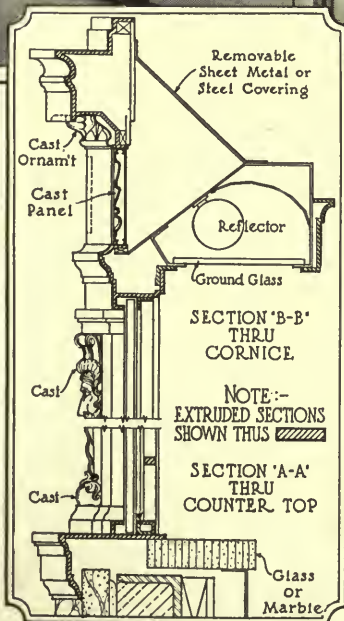
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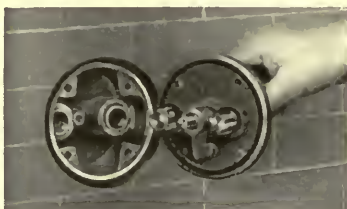
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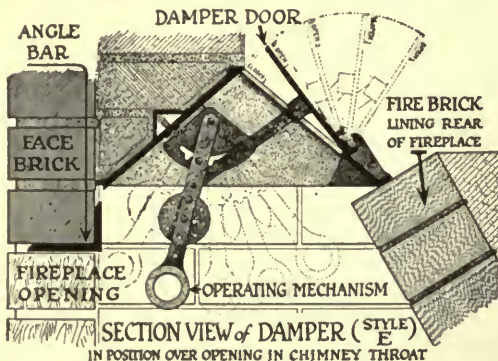
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BRASS PIPE

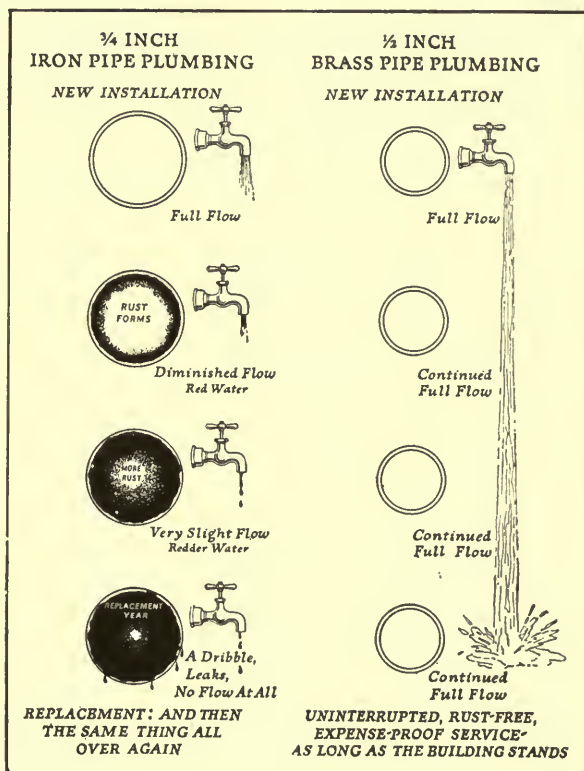
at Almost the First Cost of Iron

WRITING in the Plumbers Trade Journal, Mr. T. N. Thomson, sanitary engineer, compares the sizes of iron and Brass pipe required to carry the same volume of water and presents a table of sizes which, when filled in with prices by the estimator, gives a Brass installation at a cost so little in excess of iron that the difference may be ignored.

To illustrate at a glance the basis for Mr. Thomson's calculations we have prepared the diagram which appears on this page.

Deterioration of iron pipe begins the day it is made and progresses in service until the iron pipe becomes completely clogged with rust.

This corrosion, which is particularly acute in the hot water supply lines, not only discolors the water but greatly reduces or stops delivery at the fixture, and also eats away the pipe wall to such an extent that in many instances leaks appear within



Saving in Pipe Size by Use of Brass

From many years' experience on a variety of work, it would appear that reasonable differences in diameter for street service and cold water lines are as follows:

$\frac{1}{2}$ inch Brass instead of $\frac{3}{4}$ inch iron					
$\frac{3}{4}$	"	"	"	1	"
1	"	"	"	$1\frac{1}{4}$	"
$1\frac{1}{4}$	"	"	"	$1\frac{1}{2}$	"
$1\frac{1}{2}$	"	"	"	2	"
2	"	"	"	$2\frac{1}{2}$	"

For hot water lines, the following appear reasonable:

$\frac{1}{2}$ inch Brass instead of 1 inch iron					
$\frac{3}{4}$	"	"	"	$1\frac{1}{4}$	"
1	"	"	"	$1\frac{1}{2}$	"
$1\frac{1}{4}$	"	"	"	2	"
$1\frac{1}{2}$	"	"	"	$2\frac{1}{2}$	"
2	"	"	"	3	"

six years and force a renewal of the piping.

On the other hand, Brass pipe delivers at the end of any number of years of service as much water as it does on the day it comes from the mill.

Reprints of Mr. Thomson's article are available upon request to the Association.

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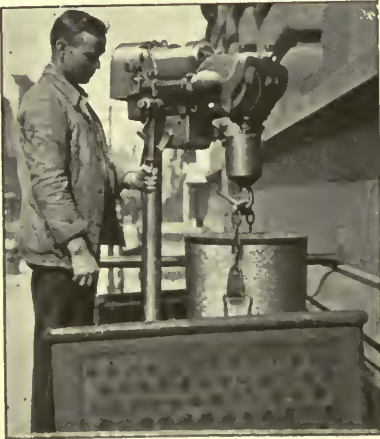
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- Ash Can Truck

For scale drawings and specifications see:
Sweet's, pp. 2007-2015, or G&G October,
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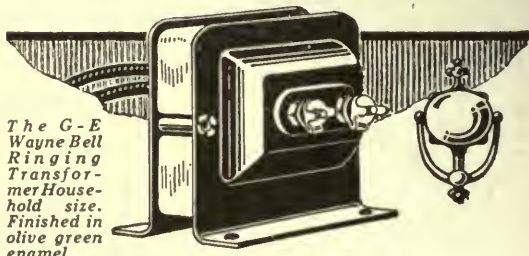
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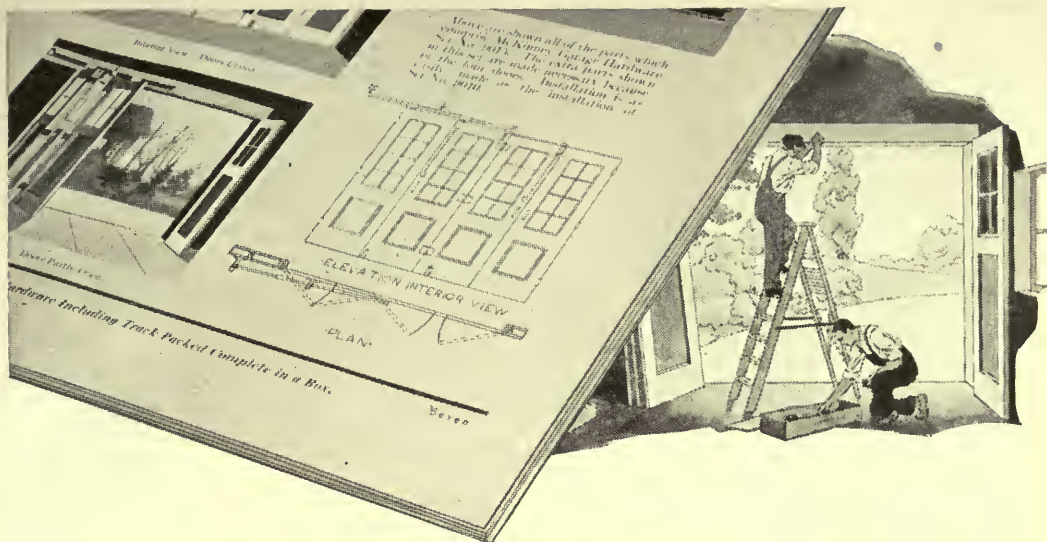
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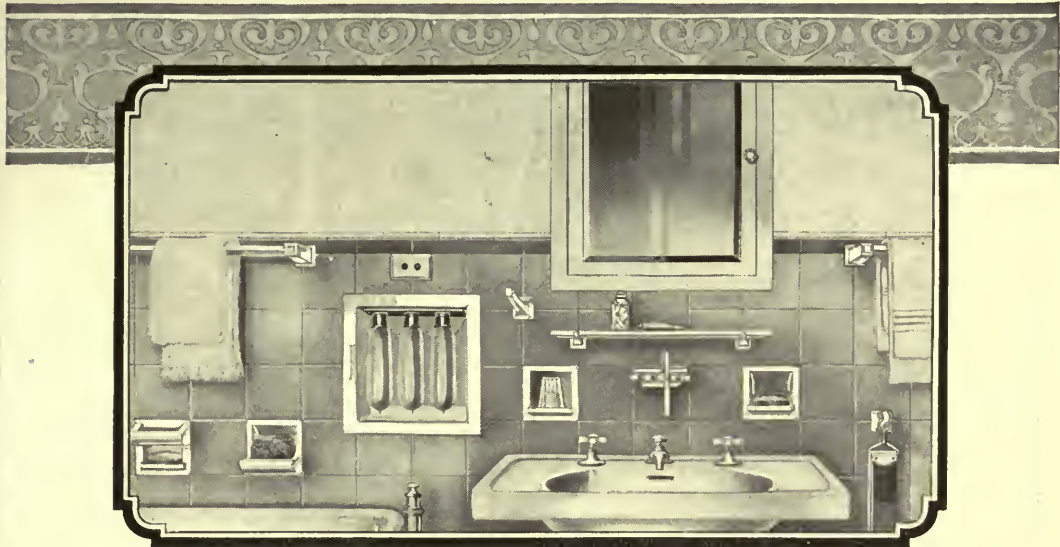
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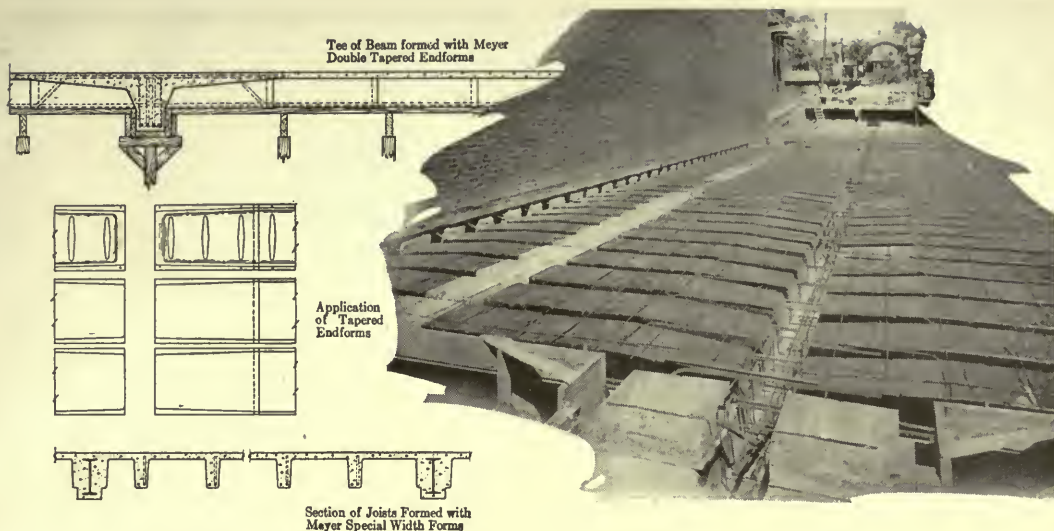
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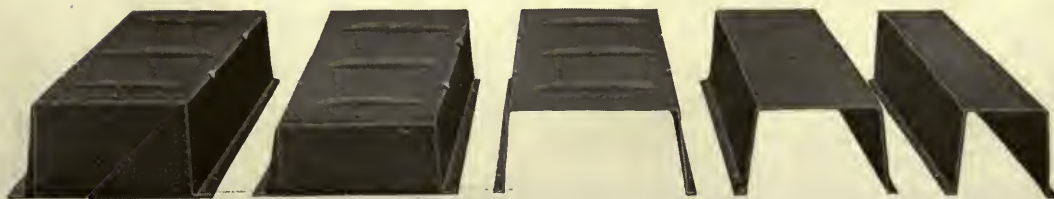
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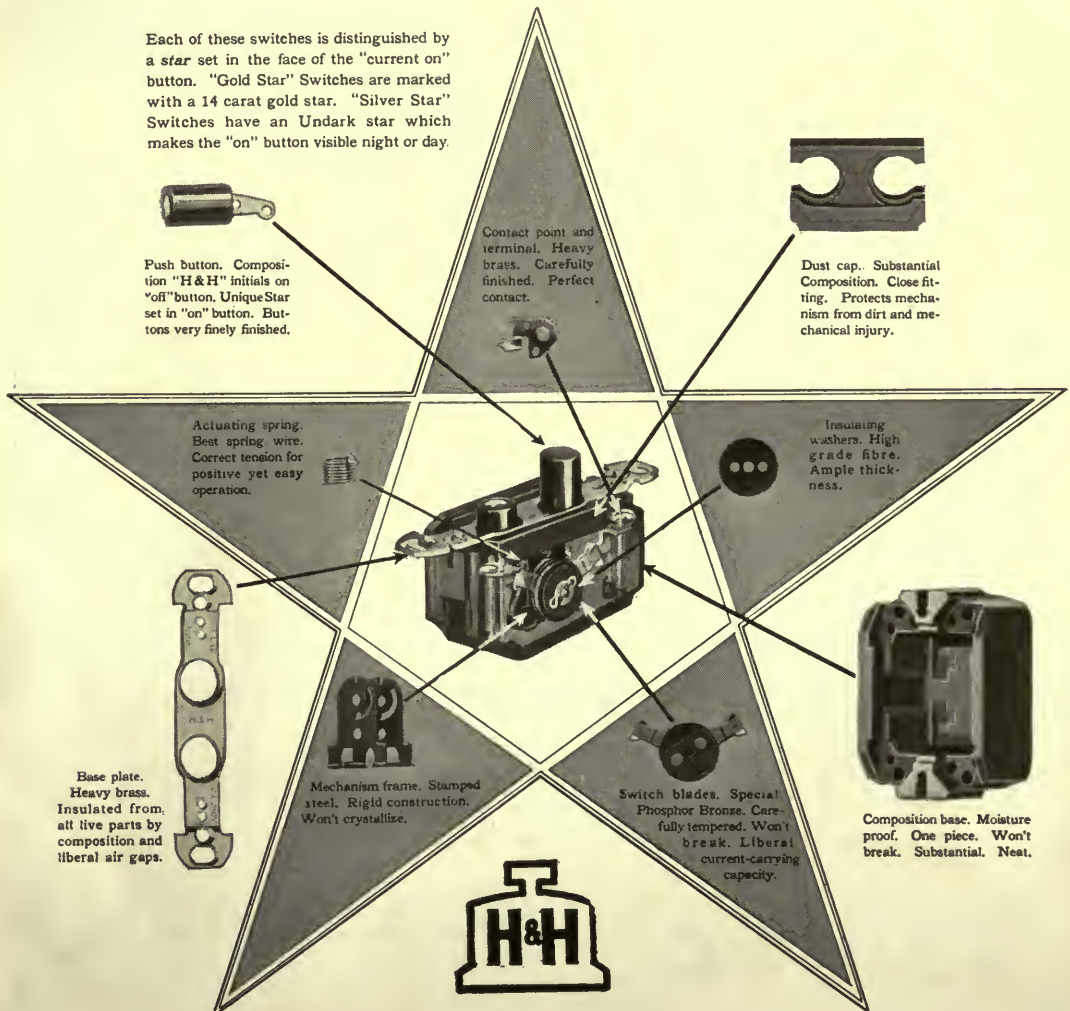
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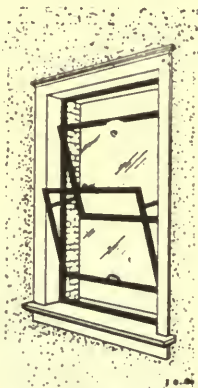
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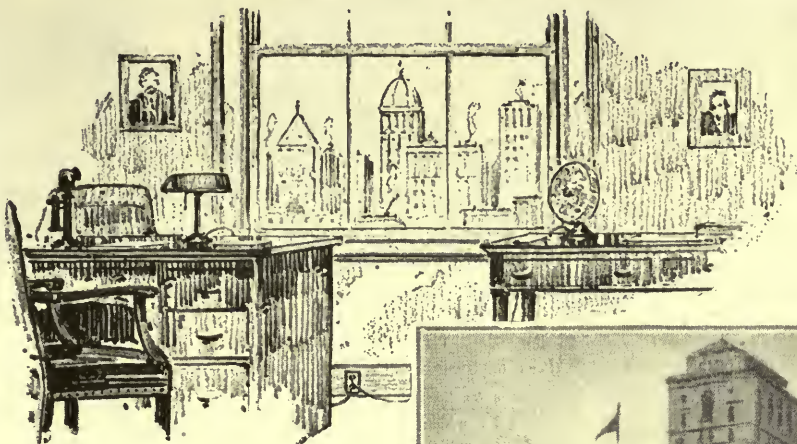
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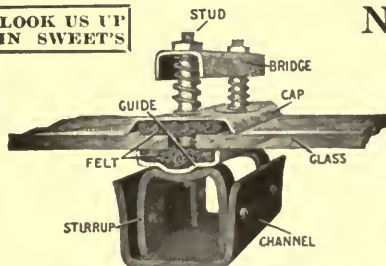
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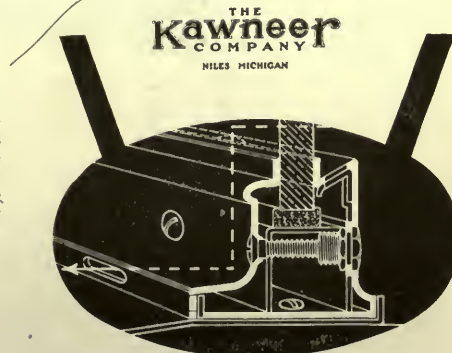
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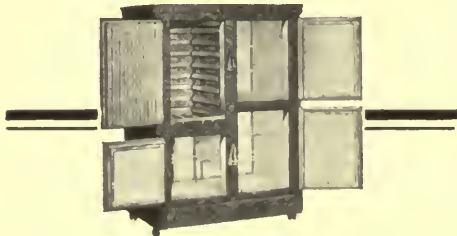
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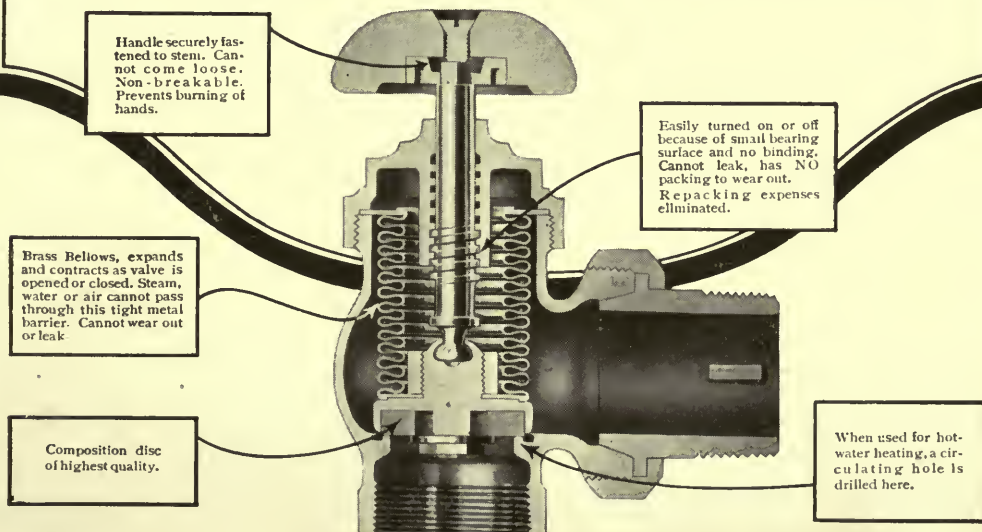
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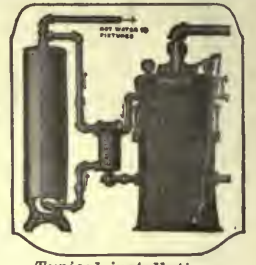
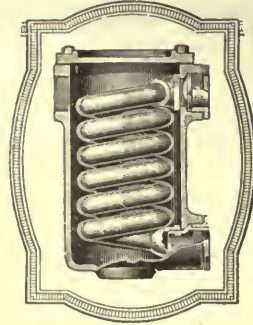
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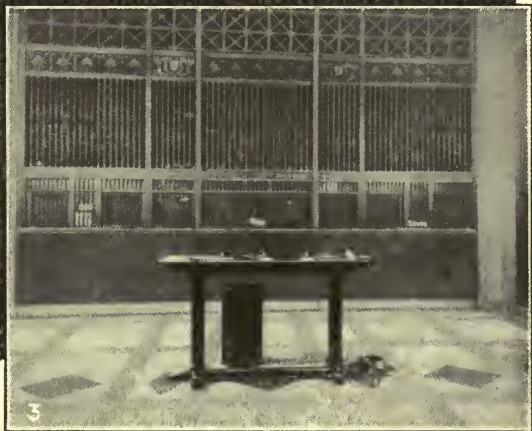
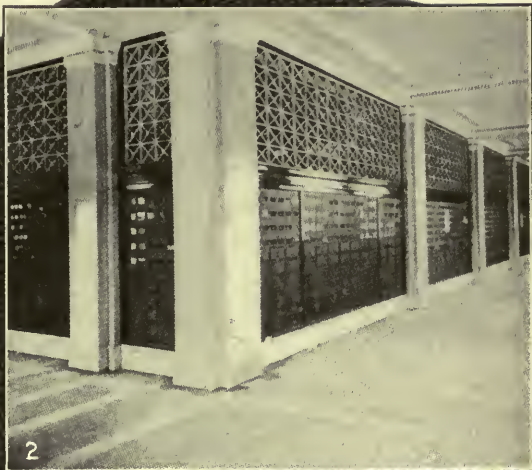
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The coal must be ground as fine as the raw stone. Eighty-five per cent of it or thereabouts must go through the sieve that holds water. And that often means two grinding operations.

There is still the clinker to be ground. It is glass-hard to begin with. It must be ground first to the fineness of sand, and then ground and reground in another cylinder of steel balls—until at least 78 per cent of it will go through the sieve woven finer than silk.

Huge boulders to an impalpable dust. Common coal to an impalpable dust, and finally, after the burning, glass-hard clinker to an impalpable dust. That is the making of cement. And eight heavy grinding operations are required in the process.

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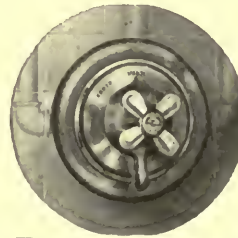
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Bathroom fixtures are very much alike to the eye when first installed. It is left to the unfortunate—or fortunate—owner to discover the hidden quality or its absence after continued use. **LEONARD** Mixing Valves are constructed with all castings, interior and exterior, of bronze, and with all working parts of phosphor bronze. No metals can surpass these in long life and withstanding the action of water.

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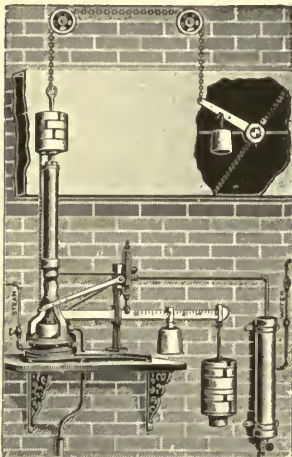
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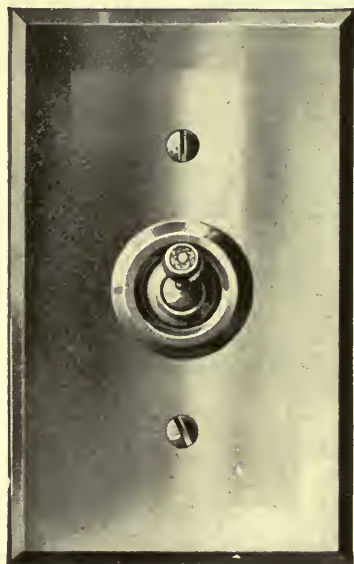
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Sweet's Index
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Fig. 106, Standard Brass Globe Valve, one of the many types of Jenkins Valves used.

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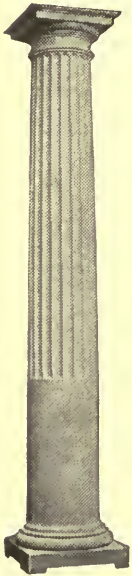
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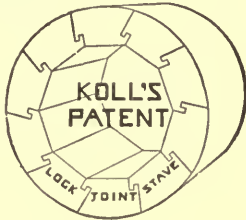
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Terrazzo Floor Divider and Corrugated Brass Strips

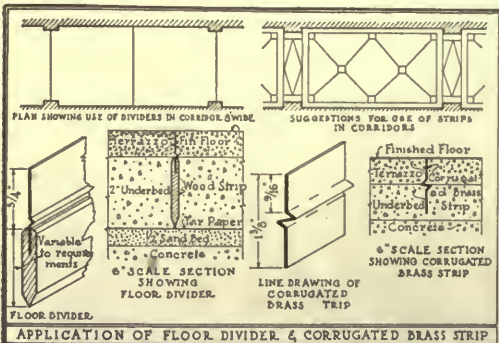
DEL TURCO laid floors are guaranteed against cracks for a period of three years—for the Del Turco strip is a continuous joint in the terrazzo and underbed, absolutely separating each panel from the one adjoining and (there being no perforations) preventing their locking together. Look for the complete data in Sweet's, 17th Edition, pages 392-393.

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Points of Crack 5 Prevention

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- A* On ceilings of prominent rooms
- B* As a 6" lap on either side of wall and partition angles and around door bucks
- C* Back of wainscots and tile mantles
- D* Across plumbing pipes and heat ducts
- E* On exterior walls for successful stucco.

Youngstown
STEEL PRODUCTS

PLUMBING pipes and heat ducts are one of the causes of unsightly plaster cracks such as that which disfigures the lavatory shown here. Cracks like this soon make the finest home look old—take dollars away from its sales value.

Less than one dollar invested in Mahoning Metal Lath over the pipes under this wall would have prevented the crack. Yet \$10 spent now will not repair the damage.

The additional investment required to use Mahoning Metal Lath at the five points of crack prevention is surprisingly small—less than \$100 on the average \$10,000 home—the satisfaction obtained is wonderfully great.

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Send for
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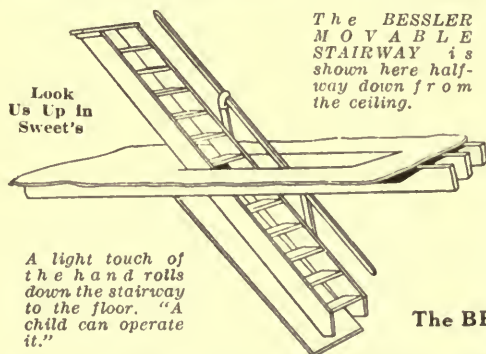
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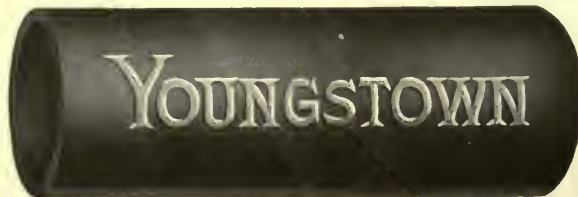
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End This Million Dollar Evil!

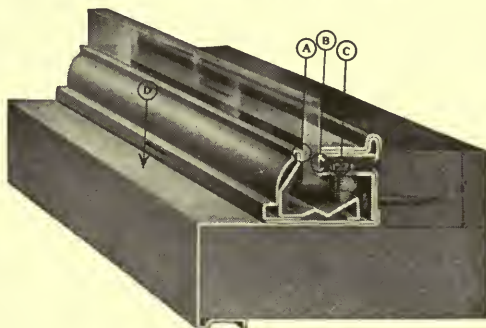
Insurance figures reveal that millions of dollars literally "go to smash" each year through plate glass breakage. And the loss of time and show window space would add many millions more.

Yet this huge national waste is needless and preventable. Faulty setting is the chief cause. Faulty setting is next to impossible when you include in all your store front specifications the following

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All Metal Sash, Corner Bars, Division Bars and Self-Adjusting Setting Blocks, Used in Store Fronts Must be Listed by the Underwriters' Laboratories.

A is the point where the outer member presses against the glass, when the delicate watch-like turning of the key at C brings the glass automatically into contact with the rabbet of gutter B sliding on the anti-friction Murnane Self-Adjusting Setting Block.



No. 110 Zouri Combination Key-Set Sash and 705 Sill Covering

The Sill Covering D extends from the inner side of the rabbet to the lower edge of the face, eliminating joints, perpendicular screws or nails — positively protecting the wood against deterioration, for leakage is impossible.

Why tolerate an unnecessary evil when this certain remedy is known? The installation of Zouri Key-Set construction will prove a boon to insurance companies, manufacturers, merchants and consumers.

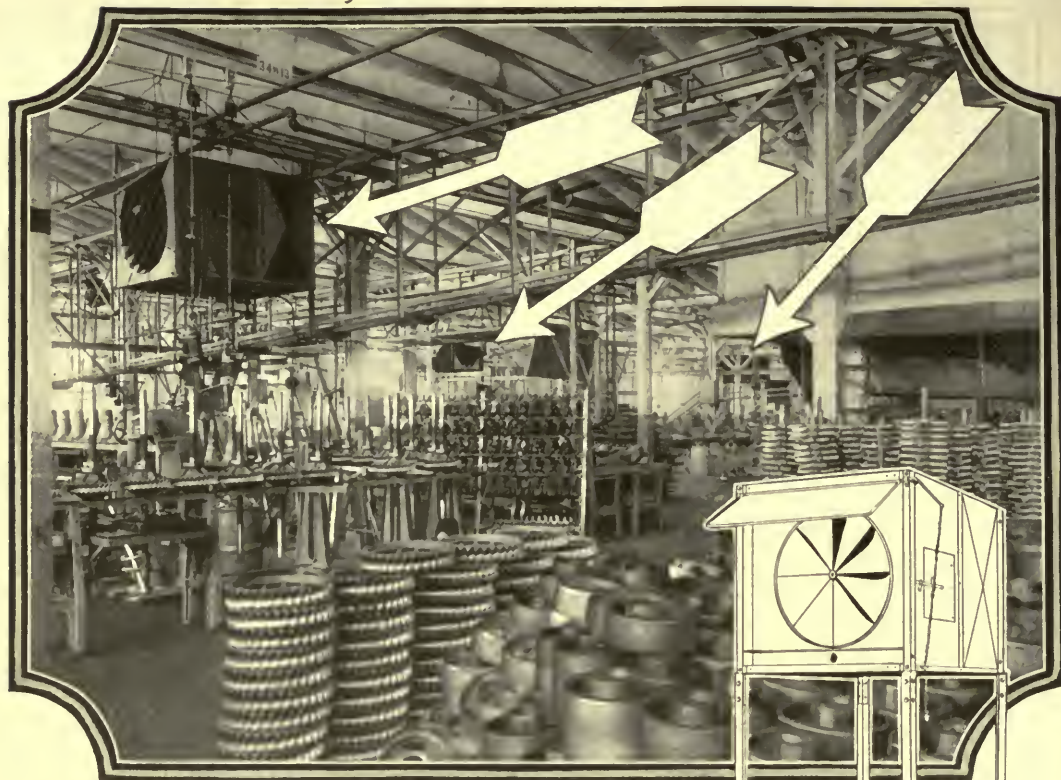
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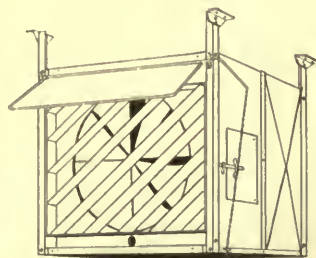
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Ceiling Type of the Ilgair Unit Heater



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